JUNE 1960

SAFETY

A NATIONAL SAFETY COUNCIL PUBLICATION

SPECIAL 16-PAGE SECTION:

The Challenge to Management of Off-the-Job Accidents



WHAT KIND OF TOES ARE YOU BUYING?

What kind of toes are you buying, steel toes or human toes? Sounds crude does it? Not if you face the facts, it doesn't!

Unfortunately, there are literally thousands of small and medium industrial plants that give no thought whatsoever to protecting their workers' feet with safety footwear.

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A NATIONAL SAFETY COUNCIL PUBLICATION

Vol. 81, No. 6

June 1960

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NATIONAL SAFETY COUNCIL

Chartered by the Congress of United States



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THE COVER

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EXPANDING WORLDS

AT 23, Alexander the Great is alleged to have wept because there were no more worlds to conquer. There were still vast territories on the borders of his empire, but to him they were only wilderness. So limited is human vision that even great men cannot take in the whole horizon. So Alexander wept like a spoiled child who was tired of his toys.

Now our world is pretty well mapped, thanks to courageous explorers whose love of adventure or hope of gain led them beyond the limits of their constricted world. So man is setting his sights on

Territorially, the world has expanded since Alexander's day, but that represents only a fraction of human progress. Man's knowledge has increased enormously—unfortunately much more than his

Alexander's career was a tragic example of a misused life. Few men have had greater natural gifts or greater opportunities. His tutor was Aristotle, one of the great minds of the ages—the man who laid the foundations of modern science.

It was Aristotle, incidentally, who made Alexander's conquests dung," more Macedonians would have died from disease than from possible. Without his succinct warning, "Boil your water and bury your Persian arrows. Like many another bit of ancient wisdom, that basic principle of sanitation became lost in the filth of the middle ages and was rediscovered only in the last century.

Alexander, it is true, was more than a conqueror; he was an able organizer and ruler. He brought order and prosperity to his vast empire. But his limitless energy found an outlet only in combat. He had no scientific curiosity and was bored by administrative duties. So he turned to dissipation and died ingloriously in a drunken brawl. His empire soon fell apart.

In human progress the conqueror had far less influence than his teacher, whose kingdom was of the mind and the spirit. Our ideas of ethics, government, and science have owed much to the principles laid down by Aristotle.

In comparison to the world of the ancients, our own is vast, but our horizon is still restricted. Most of us still regard this earth as the center of the universe, in spite of our curiosity about outer space. Each generation has thought that every possible discovery had been made, only to have the next one bring out some thing even more startling. Now we are reluctant to say that anything is impossible.

There are still plenty of worlds to conquer—right here on our own planet. Large tracts of real estate are unsuitable for development at present because of climate or endemic disease. Maybe science can do something here to take care of our exploding population. And the common cold, as well as many more deadly ailments, is still with us.

One of the problems which promises to plague us through the foreseeable future is to find methods of controlling new conveniences so we can use them without their destroying us. But while we're trying to conquer the perils of the atomic-rocket-space age, the old familiar hazards refuse to stay under control.

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AROUND THE COMPASS Councils' Division of the Council. From 1930 to 1936 Mr. Stricker



ACTIVITIES

PROGRAMS

EVENTS

By THOMAS J. NOLAN

Field Service Department, NSC

Delaware Promotes Off-the-Job Safety

The Delaware Safety Council reports the promotion of off-the-job safety in 350 plants in a statewide campaign. The program is divided over the year into three phases. Each phase will have a packet of material to assist local plants in promoting off-the-job safety. The council indicates it has received tremendous support from newspapers and radio, as well as enthusiastic reception from industry.

The current phase of the program is on fall prevention. The theme is "Let's Keep 'Delaware' on Her Feet!" A checklist and scorecard for home falls has been distributed. The checklist asks questions concerning hazards for yourself, the family (especially older folks), children, and outdoors. The resultant score indicates how aware the individual is of hazards that lead to falls. If the person reading the check list wants to know more about making and keeping his home accident-free, he is invited to write or phone The Delaware Safety Council.

A Home Safety Newlsetter is part of the campaign packet. The newsletter mentions statistics regarding falls, suggests ways the individual can help prevent falls, points out areas where accidents may happen (such as stairs, ladders and rugs), and suggests projects for local clubs or organizations.

First Advanced Managers' Seminar

James K. Williams, chairman of the Conference of State and Local Safety Organizations' Training Committee, has announced the first Advanced Managers' Seminar in "Safety Organization Management." The seminar will be held at New York University, June 6-10. The Training Committee hopes to schedule three additional courses in other regions of the country.

The seminar presents a new and challenging approach to training in this field. The central theme is Safety in the Sixties." The course subject outline refers to economic patterns, population growth, transportation trends, city planning and redevelopment, methods analysis, and communication.

Lecturers and discussion leaders for the first seminar will include faculty members from New York University's Graduate School of Public Administration and Social

The course will be offered in addition to the regular Managers' Institute, held each October during the week preceding the National Safety Congress.

Paul Stricker Retires

Paul F. Stricker, executive vicepresident of the Greater New York Safety Council, retired April 30, He had served in this position since November 1943. Mr. Stricker's career in the organized safety movement covers a span of 38 years.

On graduation from Cornell in 1917, he enlisted in the army and served for two years. After working in chemical engineering, research, and development activities for four years, he became the first director of the Baltimore Safety Council in 1923. From 1925 to 1928 he was a field representative for the National Safety Council, assisting communities in accident prevention programs. In 1928 he was named director of the Territorial

served in several positions, including that as director of safety for the Tennessee Valley Authority. He rejoined the National Safety Council in March 1936 as director of field service. He served in this position until he became executive vicepresident of the Greater New York Safety Council.

He has been a member of the Engineering Committee of the President's Industrial Safety Council since 1948, the American Society of Safety Engineers, The Institute of Traffic Engineers, Tau Beta Pi, Theta Delta Chi, and other organizations. He has authored numerous pamphlets and articles on accident prevention.

Robert J. O'Donnell, district director of the National Safety Council, will be the acting manager of the Greater New York Safety Coun-

Name Detroit **Executive Director**

The Greater Detroit Safety Council recently announced the appointment of Captain Gerald E. Montgomery as executive director of the

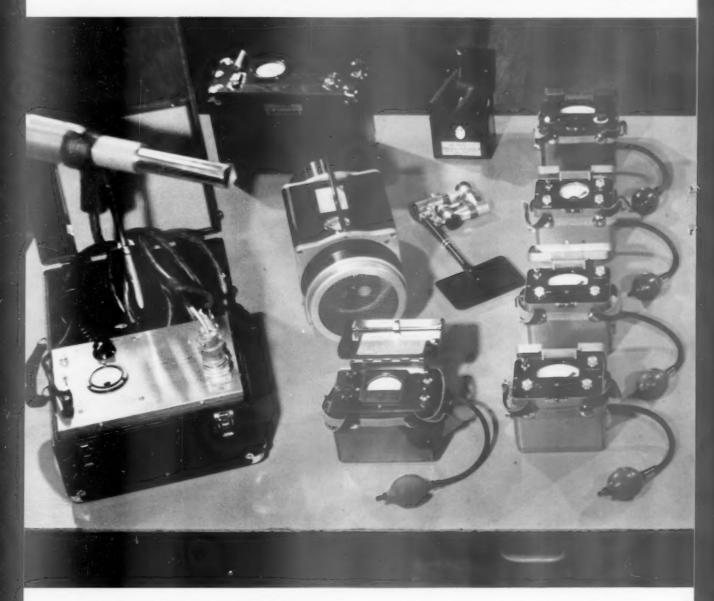
"Jerry" comes to the council with 25 years of service with the Detroit Fire Department, having served the past 10 years as head of the Public Relations Department. He has been active in safety council work and has participated in the council's activities as chairman of several of the larger divisions.

Action Program Committee Meeting

The committee on the Organized Citizen Action Section of the "Action Program" met at NSC headquarters May 5 and 6 to complete work on its report for the revised program. The committee members were selected from state and local safety organizations and other national organizations interested in activities of citizen groups.

Two drafts of a paper covering the Organized Citizen Action Section have been circulated among the members for their comments and suggestions. The final draft reflects the combined thinking of the group.

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What does "full line selection" mean to you? In portable instruments at MSA, there's an A to Z selection of onthe-spot sampling units for dusts, mists, fumes and smokes.

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A generation ago, in 1927, we began work on our first colorimetric detection instrument. Hardly a year has gone by since, that we haven't added at least one new instrument to our extensive line. And we're still adding.

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Perhaps a talk with the MSA man about dust and gas hazards in your plant would prove helpful.

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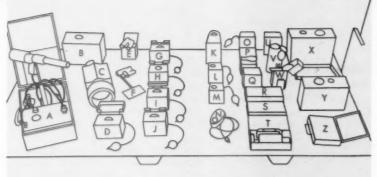
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SMALL BUSINESS and ASSOCIATIONS

By RAYMOND C. ELLIS, JR., and JOHN T. CURRY

Small Business Program Staff, National Safety Council

Waste at Its Worst

Supplementing the theme, "Safety in the Sixties," Howard Pyle, president of the National Safety Council, is placing an emphasis on "Waste at Its Worst." This battle cry has particular meaning to the small business organization, as the margin of profit depends so critically on careful management and effective utilization of safety as a management tool.

Recently the small business and associations staff made a presentation to a group representative of the metal industry. Similar facts and figures could have been developed for most any industrial, trades or services group. We quote:

"The record shows that you are throwing money away! Over three-quarters of a million dollars are paid for workmen's compensation each year. At a 3 per cent profit ratio, that compensation took the profit from 26 million dollars in sales. At a 5 per cent profit ratio, you threw away profit on 16½ million dollars in sales. This is 'Waste at its worst!'

"On one flight of standard steel stairs, let's assume a profit of \$90. In this profit picture, the metal industry erected 8,711 flights of steel stairs to pay for the expense of employee compensation.

"For those 8,711 flights, approximately the following amounts were spent:

\$1,500,000 for materials \$500,000 for drafting department labor

\$1,650,000 for shop labor \$2,500,000 for overhead costs \$250,000 for freight charges \$1,200,000 for erection costs.

"And when you had finished, all

you had accomplished was the payment of your employee compensation charges for one year. How come you're in the accident business, in addition to the metal business?"

A similar report was recently issued by an association in the food and beverage industry under the title, "What You Don't Know Can Hurt You." This report said:

"Judge for yourself. In our industry in one year, there are at least: 5,466 injuries, causing a loss of one day or more from work; 18 injuries resulting in permanent disability or death; 29,576 man-days of production time lost; 29,670 cases requiring first aid or doctor's care.

"This means that in one year, because of accidents, 1 out of 13 employees lost at least one or more day's time.

"And that this loss amounts to \$3,825,000 a year just for workmen's compensation insurance.

"Also that if you include indirect losses which our industry work injuries cost, they may exceed \$7,500,000 annually."

If any of the readers conduct a similar analysis for their companies, we would appreciate a copy of that report. The source will be kept confidential, but the data could be instrumental in extending safety to other management groups who do not have a safety program.

R. F. Gilmour to Judge Association Awards

The April 1960 Small Business and Associations page indicated that Hal T. Lovejoy, manager, Accident Prevention Department, Jamestown Mutual Insurance Company, Jamestown, N. Y., would serve as a judge on the NSC Association Award

Committee. His place on the committee will be filled by Robert F. Gilmour, managing engineer, Safety Engineering Department, Utica Mutual Insurance Company, Utica, N. Y.

Safety Through Cooperation

It is hoped this is the initial report of a movement that might sweep the nation. During recent months there has been increased participation in safety by local associations, in addition to those active with the National Safety Council through local safety councils. This permits an effective contact with local business, whether classified as large or small. In New England a state hospital group is working with the state safety council to include a hospital safety session in the next annual safety conference.

A midwestern safety council is working with the local merchants associations in the development of a safety program for local retail establishments.

A county safety council in the South is working with several of the local associations to extend safety to smaller businesses throughout the county.

The small business and associations staff has been assisting in these efforts and may be contacted to assist in a similar project within your community. Review the needs of your community and see whether closer liaison between local associations and the local safety council might not contribute considerably to safety in the community. If your analysis shows such a need, write to Ray Ellis, Jr., or John Curry.

AEC Participates in Summer Programs

With the cooperation of the U. S. Atomic Energy Commission, the University of California at Berkeley will sponsor a series of courses on radioisotope principles and techniques for management and technical personnel.

These summer programs were made possible by the first equipment assistance grant awarded under the commission's isotopes development program. Industry and AEC representatives will participate as guest lecturers.

A one-week survey course will be held July 18-22, to increase management understanding of basic concepts in radioisotopes and radiation technology. The course is designed primarily to assist executives to support their technical staffs in application of isotopes and radiation to industrial advancement.

A two-week course (June 6-17) on radioisotope theory applications and safe handling is designed to give insight into potentialities and problems of using radiation in industry and research. The course would be of interest to personnel concerned with radiation control and safety programs

A four-week course (June 20-July 15) on advanced radioisotope principles and techniques will stress use of isotopes and radiation in industry and research. Principal emphasis will be on techniques, instru-

mentation, equipment, and facilities for industrial applications with radiation safety a primary consideration.

The two-week and four-week courses are directed to technical personnel who are present or potential users of isotopes and radiation in industry. The program is arranged so a participant in the two-week course may continue in the four-week course, depending on the extent of training desired.

Management and technical personnel may obtain application blanks and information from: Engineering and Sciences Extension, University of California, 2451 Bancroft Way, Berkeley 4, Calif.

The science of medicine has advanced to the point where an ounce of prevention is worth about \$18.50.



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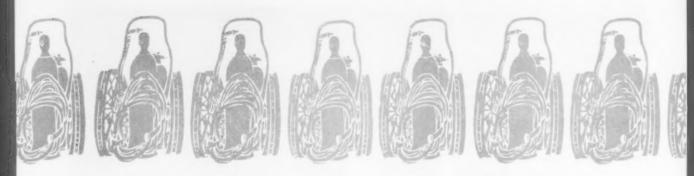
The National Safety Calendar is an effective safety program aid. Everyone of its 12 illustrations has a safety theme and makes an important point about home safety. Its famous safety limerick contest creates family-wide interest in safety all year. There's definitely a place for a calendar, The National Safety Calendar, in your safety program. No other safety publication or safety incentive has the staying power or interest and educational value of the National Safety Calendar. Build it into your safety program plans for 1961.

So be an early bird, order your Calendars now! You'll get a discount of 5% from the published prices (plus your 10% member discount, of course). This discount is NSC's way of rewarding the early birds that help ease the year-end pile-up of calendar orders. Orders will be shipped September 15, or later if you wish. And, of course, you won't be billed until shipment is made. Remember the deadline for the 5% discount is June 30. Be an early bird, order your 1961 National Safety Calendars today!

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_TERENCE

WE'RE ALL COGS

To BE CALLED a cog in a machine, replaceable at a moment's notice, is generally considered an insult to one's dignity. But doesn't that label fit anybody engaged in useful work?

Certainly, an editor is a cog. In getting out a publication, he meshes with such other cogs as the ad manager, compositor, proofreader, pressman, bindery operator, and others who handle the book. And he is the target for complaints due to his own and other people's failures.

This little homily was suggested by a yellowed clipping dated January 20, 1940, uncovered while I was turning over that compost heap known as the "idea file." The piece was written by a shift worker who was proud to be a replaceable human cog. I quote in part:

"The definition is correct," he says, "yet I take great pride in my job. Small as it is, it is vital to a great business—the business of life and progress.

"For eight hours a day, I am the human cog responsible for the operation of a number of pumps, motors, and machines. They must be kept running to supply water to a rayon mill which gives employment to more than 2,000 other human cogs, including the resident plant manager and the president of the company in a Park Avenue office a thousand miles away.

"Each of us performs a job that is necessary in the operation of this one plant which itself is merely a cog in the industry of the country. And industry, like agriculture and government, is only a cog in the machine that is American democracy.

".... I am a cog in a machine, but that doesn't for a moment mean that I can't be a definite individual as well. True, I work with clocklike regularity at a routine task for 40 hours each week, but I have 128 hours in which to satisfy my human needs and desires."

As a cog in a machine, this writer points with pride to some distinguished fellow cogs. Like him, all are replaceable. And in the past 20 years all of them have been replaced.

"If they could not be replaced," he reflects, "then the machine would be crippled, progress would stop, and democracy would perish.

"I'm particularly glad that I'm a cog in our industrial machine. Industry has its faults, of course, but it seems to me that its aim is the happiness of all of us. For the very growth of this machine depends upon its ability to bring more comforts and conveniences within reach of more people every year.

"I am a cog in a machine that is a never-failing servant of humanity. The health, happiness, and pros-

perity of all the people, taken together, is a measure of the success of this machine. And every time a family buys a new radio, a refrigerator, an automobile, or a cake of soap, that family enjoys the fruit of my labor—just as I am benefited every time I pick up a telephone to call a doctor, or turn on a light or read a newspaper.

"Alone, a single cog seems insignificant, but judged by its contribution to the progress of the whole machine, progress demands that there must be a quick replacement whenever one stops doing its work properly.

"Knowing that I could be replaced at a moment's notice doesn't make me feel insignificant. Rather, I am heartened by the knowledge that another cog would carry on in my place or in the place of any other cog, whether it operates in industry or government. In no other way could I be sure of happiness and progress for my children."

Since the foregoing was written, shooting wars, cold wars, and poisonous ideologies have shattered much of that type of idealism. Too bad. More of that understanding at all levels and more respect for the other fellow's job would ameliorate many of our social and economic problems. And, who knows, some of it might carry over into the international scene.

DISCIPLINE

LETTING an employee get away with repeated infractions of rules, and then throwing the book at him, is poor policy. It's demoralizing to the organization and unfair to the individual. If violations menacing life and property are not taken care of immediately, management is guilty of negligence.

Besides, if the case comes up for arbitration, the arbitrators won't be impressed if the boss has been merely keeping a record of the worker's shortcomings in his little black book and doing nothing about them. In such a case the arbitrator may regard it as a first offense and scale down the penalty.

TIME TO RELAX

EACH YEAR as vacation time rolls around, I think of Martin Luther's advice to his fellow theologian, Melanchthon:

"Come, Brother Philip, let us leave God to run the world for a day. You and I will go fishing."

If you have been reading this page for several years and have a good memory, the above may sound familiar. But it's worth repeating and heeding.

IT IS MUCH EASIER to be critical than to be correct. —Disraeli.

Carman Fish

Protect your community!...

Stop Highway Fires From



Spreading Disaster!

With the steady increase of highway traffic comes the increasing risk of fires resulting from crashes and collisions.

These fires, always frequent, are often fatal — killing or injuring people at considerable distance. And they threaten your community with death and damage on every local highway, built or building.

The only way you can prevent highway fires from becoming major disasters is to put them out as quickly as possible. Rockwood fire fighting products bring you that positive protection.

- Using Rockwood nozzles or turrets, on fire trucks or on the ground, you can hit fires harder.
- Using Rockwood FOAM liquid, single or double strength, you can throw a complete, quick smothering blanket over fires in flammable liquids or other combustibles.

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Your Session Schedule

for the 1960 National Safety Congress and Exposition

October 17-21 in Chicago

ALTHOUGH THE CONGRESS will last for 4½ days, you can attend only so many sessions. This schedule will enable you to make the best use of your time at this valuable series of safety meetings.

The *Preliminary Edition* of the printed Congress program will be mailed the latter part of August. The *Final Edition* will be distributed at the time of registration.

The preliminary program will be even more helpful as a background for the final edition, if those taking part in Congress sessions will assemble names, facts and dates early. In this way Congress-goers will have a head start in selecting the particular speech, panel, demonstration or other activity that will meet a particular safety need.

DATE AND HOTEL ASSIGNMENTS

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X One session; X-3 Three group sessions; L Luncheon; X-jt. Joint session, two or more sessions.



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OCCUPATIONAL HEALTH



Abstracts of current literature on Occupational Hygiene, Medicine, and Nursing

BY J. T. SIEDLECKI

Industrial Hygienist, NSC

Conference on Industrial Hygiene

NEW DEVELOPMENTS in the field of occupational health were discussed when approximately 2500 specialists representing the American Conference of Governmental Industrial Hygienists, American Association of Industrial Dentists, American Industrial Hygiene Association, American Association of Industrial Nurses, Inc., and Industrial Medical Association, convened at Rochester, N. Y., during the week of April 24.

The American Industrial Hygiene Association presented 117 technical papers covering air pollution, analytical chemistry, engineering, noise, toxicology, and radiation fields. Many of these papers will be published during the year in journals concerned with industrial health. A brief review of some of the topics discussed by the speakers follows:

Noise, In Industrial Noise Exposure Evaluation, S. E. Pihl discussed the necessity to report pertinent data on sound level, frequency distribution, exposure time, physical environment, and personal protection to evaluate the exposure properly. He reviewed difficulties and problems encountered with noise-measuring instruments and emphasized the need for checking instruments to obtain reliable data.

A discussion of the development of an industrial audiometric program covering 20,000 employees was presented by E. C. Riley, MD, in *Ten Years' Experience in Industrial Audiometry*.

Dr. Roger B. Maas indicated in Can We Obtain Successful Ear Projection Programs? that there are few successful hearing protection

programs. Good results can be obtained only if management gives its full support and encouragement, ear plugs are fitted individually by the nurse or safety personnel, supervisors routinely check employees to see if the devices are worn, and regulatory action is taken to impress workers that the ear protection program is company policy.

Principles of Noise Reduction in Machinery was discussed by Guy J. Sanders. A description was given of the various methods of producing noise and means for reducing each type of noise at the source.

Noise control purchasing specifications as the most logical source of information in determining what noise sources will be in future installations were discussed by A. L. Cudworth in *Planning for Less Noise*. Plant layout should give consideration to the selection of processes on the basis of noise production and noise exposure involved.

A discussion of machinery noise problems was presented by Edgar A. G. Shaw in *Machinery Noise Reduction*. Investigations were conducted on solutions of couch roll noise in the paper industry and nail machine noise in the steel industry.

A Guide for Determining Specifications in the Use of Acoustical Tile was offered by Bruce J. Held. The indiscriminate use of acoustical tile has often resulted in loss of thousands of dollars through ineffectual application of noise control materials.

Successful noise reduction of punch presses achieved by total enclosures fabricated from "composition board" or sheet metal and with interiors lined with acoustical material was described in *Punch Press* Department Noise Abatement Program by George T. Mysnyk.

D. J. Chamberlain presented Reduction of Noise From High-Speed Riveting Hammers, Automatic Screw Machines and Air Powered Screw Drivers. He also discussed A Punch Card System for Recording Noise Levels as a means of keeping permanent records for legal and medical reference.

A description of noise reduction measures of a Robinson size 1600 rotary knife cutter, Robinson size 2436 rotary knife cutter, and a single ball and jewel 30 inch rotary knife cutter was submitted by Carl E. Lind in Reduction of Noise From Rotary Knife Cutters. An over-all noise attenuation was achieved at the operator's ear from 112 db. to 86 db., 103 db. to 94 db., and 118 db. to 98 db., respectively.

R. D. Lemmerman presented a paper on A Silencer for Blast Furnace Snort Valves.

Engineering and Air Pollution. The value of good engineering for better contaminant control and reduced installation and operating costs was discussed by K. E. Robinson in Demonstration Showing the Effects of Good and Poor Ductwork Design.

Advantages, disadvantages, and limitations of Catalytic Mufflers for CO Control of gaseous air pollutants from internal combustion engines were offered by Berton Karol.

Trowellable Epoxy Tank Linings and Use of Isopolyesters as Maintenance Coatings were presented by John Delmonte and R. W. Stephenson, Ph.D., respectively.

Melvin W. First and Frederick J. Viles, Jr. commented on Air Flow Resistance of Flexible Metal

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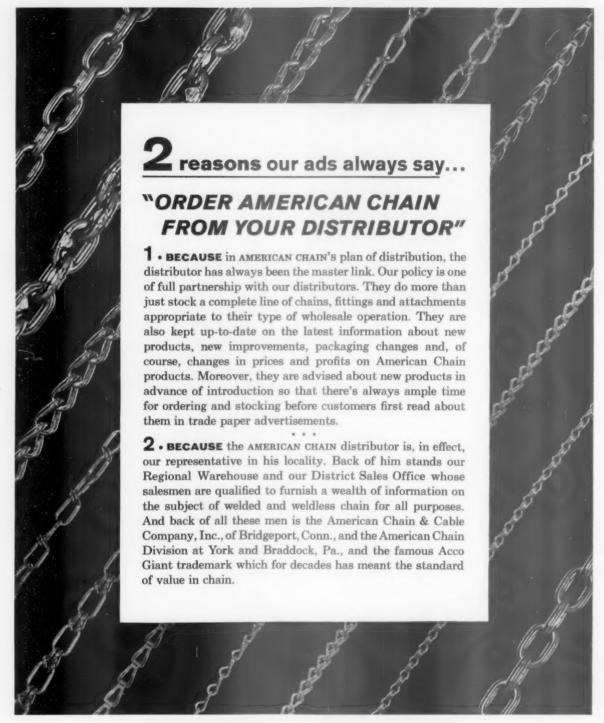
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WIRE FROM WASHINGTON

By HARRY N. ROSENFIELD

Washington Counsel, National Safety Council

This report is an information service. Publication does not imply National Safety Council approval of or opposition to any legislation mentioned

SAFETY has been a constant concern of the present Congress, and in many ways.

Industrial Safety. The Senate passed, by a vote of 80-4, S. 743—to make coal mines employing 14 or fewer persons underground subject to the Federal Coal Mine Safety Act. (See "Wire," October 1959.)

On the Senate floor an amendment was adopted, requiring the Bureau of Mines—after hearings—to waive those regulations applicable to larger mines and not actually required for mine safety in the smaller mines. Consideration must be given to whether these regulations would be so burdensome they would close down smaller mines without adding to their safety.

The U. S. Bureau of Mines said 245 people suffered fatal accidents in bituminous-coal mines in 1959, compared with 324 in 1958, a numerical improvement of 25 per cent. However, the Bureau says:

"The small number of fatalities is offset by less exposure; consequently, the 1959 record shows little improvement over the preceding year."

In connection with S. 743, the Bureau's report states that in 1959, mines employing fewer than 15 men underground "can be classified as the most hazardous in the bituminous-coal industry."

Safety in atomic energy matters continued to be a major concern. The Atomic Energy Commission submitted its annual report on indemnification of licensed contract, international and maritime activities and on the work of the Advisory Committee on Reactor Safeguards.

The Joint Congressional Committee on Atomic Energy held hearings on related subjects, during which AEC's chairman stated: "The time is coming when we must reconsider the organization of the health and safety aspects of atomic energy" with particular reference to the relations between AEC and the Reactor Safety Committee.

Over the next few months a study will lead to recommendations dealing in part with whether there should be an organizational separation of regulation (of safety) from administration and promotion.

The Advisory Committee on Reactor Safeguards testified:

1) There should be written criteria governing reactor sites.

2) In the design of reactors, "there should be at least three mechanical or physical safeguards, against accidents plus the additional safeguard of thoroughly competent and well trained operating personnel." There should be design criteria in terms of the level of potential damage to the public from normal day-to-day activities.

AEC transmitted to the governors for comment a set of proposed criterea by which it may relinquish and the states may assume control of certain radioactive materials. Such materials include by-product materials (radioisotopes), source material (uranium and thorium) and special nuclear material (uranium 233 and 235 and plutonium) of less than critical mass.

The program requires the governor to testify that his state has a program of control (including rulemaking, licensing, inspection, compliance and enforcement), and an AEC finding that such state program is compatible with its regulatory program and adequate to protect public health and safety. A high degree of uniformity in state and federal regulations is one objective.

The National Academy of Sci-—To page 68

THE MONTH IN WASHINGTON

- Senate passes bill making coal mines employing 14 or fewer persons underground subject to Federal Coal Mine Safety Act.
- AEC submits report on indemnification of licensed contract, international and maritime activities and on work of Advisory Committee on Reactor Safeguards.
- Secretary of Labor calls for "a fundamental overhauling of the Interstate Commerce Commission and the laws that govern transportation."
- Federal Aviation Agency announces Technical Standard Order establishing minimum performance standards for wheels and brakes used on civilian aircraft.
- Secretary of Health, Education and Welfare urges Congress to enact Delaney anti-cancer provision in color additives amendment and to make illegal the use of any color that will induce cancer when tested by appropriate methods.

Safety Follows The U.S. Engineers

In spite of discouraging conditions they're preventing accidents and winning friends on overseas projects

By ROBERT L. JENKINS

Office Chief of Engineers, Chief Safety Division, Department of the Army, Washington, D. C.

THE SAFETY PROGRAM of the Corps of Engineers made its debut in 1933. Expansion into overseas areas commenced in 1940. Today we find it in all 50 states and in 25 countries of the free world. Our 19 years of world-wide safety experience is divided into three well-defined eras.

The first was during the war years where the projects were close enough so ample American supervision and skilled labor could be provided. Design, materials, and methods were to U. S. standards. In this

period our accident experience differed little from that here at home. By the end of the war many of us thought we were world-wide construction safety authorities. A rude awakening was to come.

The second era started immediately after the war. Our projects were now in faraway places. We began to utilize on a large scale the resources and labor of the countries in which we worked. American supervision was spread thin. Many projects were located, figuratively, on still-smoking battlefields. Our program to gather up discarded implements of war was elaborate but we still had many casualties from undetected items of ordnance.

Here we began to appreciate how political, social, and economic un-

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JOURS

SANS PERTE DE TEMPS
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The Green Cross follows the U. S. Engineers around the world. Translated, the poster says: "The sign of caution . . . this job has worked . . . days without loss of time due to accident. Best previous record . . . days."

rest affects a construction safety program. The shock of war was still on the people and there was a high state of disorder. Crimes of all sorts were a major problem. Equipment and material would disappear as if it had evaporated. On one project steel landing mats were used for the subbase of a road. One night a completed section of the road was dug up and the mats stolen.

Lacking proper storage facilities a shipload of dynamite was temporarily stored on an isolated mountain. A gang of renegades requested our guards to turn over some of the explosives to them. Upon refusal they climbed an adjoining mountain and exploded the dynamite by rifle fire. All seven guards were lost.

A guard motioned a manhaul truck to proceed through the project gate. As the truck passed through, the guard deliberately emptied his weapon in the back of the truck killing several workmen. On another job a man who could not drive jumped into a loaded manhaul truck



A construction job without hard hats and safety shoes is unthinkable in this country but you'll find few of them in Eritrea. Maybe the next generation will wear them. Meanwhile the U. S. Engineers and their contractors are making progress in accident prevention in spite of handicaps.



Transporting modern materials by primitive methods is a common sight on overseas projects. Here a load of reinforcing steel is being hauled by oxen. But the ox cart is modernized with rubber tires.

and started down a mountain road. At the first curve 26 men died in the wreck. War-induced emotional instability could be traced to almost all of such incidents.

A major reconstruction job was undertaken in a country where a civil war raged. Guerrilla tactics were a continual threat. Roads completed during the day would be mined at night. Heavy casualties to both people and equipment resulted. Many workers walked to the job over rugged country. Frequently railroad tunnels had to be used as footpaths. The guerrillas would mine these tunnels causing many casualties. As a result, workmen drew straws and the one with the short straw walked well ahead. After a while the human mine detector was replaced by an animal.

Erection of a new asphalt plant was just completed and trial runs started. A group of guerrillas swept out of the hills and burned the plant.

These seem like dismal circumstances under which to promote a safety program but actually are those where one is needed the most. To the eternal credit of our people and those of our contractors, they never gave up. The problems were brought under reasonable control and the work completed.

The third era started about 1950. Since that time more than \$4 billion has been spent on overseas work under the Chief of Engineers. A major feature of this period has

been to have design, materials, and methods conform closely to standards and customs of the country in which construction takes place. The work force is virtually all local hires.

Overseas work of the Corps of Engineers is carried on by exactly the same type of organization used here at home. The principal supervising organization is called a *division*. Working under direction of the divisions are the operating elements

called districts. Each district encompasses a defined geographical area and controls all work within that area. Each division and district has a safety branch which is responsible for the safety program. Our safety policies and requirements are the same overseas as they are in the U. S.

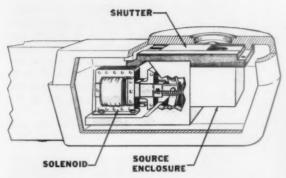
In our overseas divisions and —To page 56



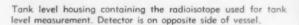
One picture may not be worth 10,000 words but it speaks a universal language. A cartoon on the cover and traffic diagrams inside help to explain safe driving to native workers and supervisors.



Under a scraper is hardly a safe place for a siesta, but often it's the only available shade. So it's up to the driver to look before starting.



Cutaway section of head containing source assembly. On destruction of alarm detector, shutter closes automatically and alarm system warns of damage to assembly.





Our Benefactor The Peaceful Atom

Radioisotopes remove more hazards than they create.

Overzealous regulation may rob us of these benefits

By W. E. VAN HORNE
Industrial Nucleonics Corporation,
Columbus, Ohio.

AT THIS MOMENT, in atomic energy, as is often the case in all fields of human endeavor, it is necessary for us to take stock of where we stand and where we seem to be heading, so we may keep everything in proper perspective.

Most public health and safety considerations today are directed to the operation of atomic reactors, mainly for power generation purposes. Power reactors certainly hold great promise for the future, and due consideration should be given to their operation.

However, let us not forget that another aspect of atomic energy is having today, and will continue to have, a very much greater effect on our economy as a whole and upon our workers and citizens than power reactors will ever have, even in the far distant future. I am speaking, of course, of the industrial and scientific uses of radioisotopes in research and, more importantly, in the production of goods and services for the benefit of all.

As of today, there are 1,100 separate licensees of radioactive materials and devices in Ohio. Hundreds of hospitals, research establishments, and industrial plants are using radioactive devices as everyday tools with great benefits for all of us. Hundreds of jobs have been created in this state because of this new industry and millions of dollars are being saved every year by the steel mills, tire factories, paper mills, and other industries.

In contrast to these widespread uses and great economic benefits of isotopes, there is today not one



Close-up of source housing showing alarm system detector. Detector is located over source and consists of a painted circuit on fragile material which will shatter if punctured. Shutter then closes automatically and initiates alarm.

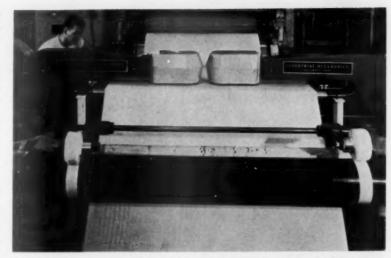
single operating commercial power reactor and only a few research reactors operating and planned in Ohio. To judge from newspaper headlines and political commentary one would think that power generation is the greatest benefit which can be achieved through atomic

In every session of Congress, a great hue and cry is raised and the demand is made that we spend more hundreds of millions of dollars to build and to subsidize more and greater power reactors to show the world that we lead in the field of the peacetime atom. In the meantime, with little fanfare, researchers and small producers of isotope devices, in partnership with the great steel companies and other industrial organizations, have proceeded without asking for one dime of govern-

Presented before the Nuclear Safety Section at the Ohio State Safety Conference, September 29, 1959.

ment funds to produce more benefits for the U. S. than will be created during our lifetime by atomic power generation.

The simple fact is that there is not now, nor will there be for at least another generation, any economic need in the United States for atomic power. Therefore, progress is made in commercial power generation only through massive injections of federal funds with inevitable planning and control from Washington. As opposed to this, American industry has great economic incentive to expand the uses of radioisotopes. These save hundreds of millions of dollars every year in raw material consumption alone through the use of automatic controls and measurements produced



A radioisotope measuring system used in the plastics industry. The shielded housing containing the sealed isotope is positioned under the sheet and the detector is located above the sheet.



Units containing radioisotopes (lower) and radiation detector (upper). Sheet of material to be measured passes through app and intercepts path of radiation.

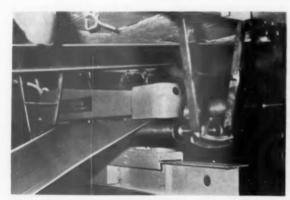
through the marvelous tools of radioactivity.

In other words, if we really are convinced that a free, competitive industry is the most efficient way of producing better things for a better way of life, then it is not surprising that we lead the world by a wide margin in the utilization of industrial isotope devices, though we lag seriously in commercial power generation.

In building this enviable position, American industry has built an enviable safety record. With numerous installations of isotopes in continuous use over many years, there has not been one single recorded case of injury, within my knowledge, to any person in Ohio caused by an industrial measurement or control device utilizing a sealed source of radioactivity. This record is properly a matter of pride on the part of industry and also the Atomic Energy Commission, which has been primarily responsible for the enforcement of safe procedures.

Recently the assignment of responsibility for safety regulations to the Atomic Energy Commission has been criticized, and it has been proposed that this responsibility be given to the Department of Health, Education, and Welfare, or else turned back to the individual states. I would not presume to take sides in this argument. We in industry are anxious to cooperate with any agency, public or private, in pro-

—To page 72



Measuring unit of radioisotope measuring system used in the paper industry to maintain uniform basis weight. Unit containing radioisotope (not visible) is located on underside of sheet.



Measuring unit used to measure strip thickness of cold rolled steel. This method is now widely used in place of the hazardous practice of hand calipering.



Jet planes present the most spectacular assault on human ears but many everyday noises cause far more cases of hearing loss.

NOISE

Mountain or Molehill?

By ARAM GLORIG, M.D.

Director, Research Center, Subcommittee on Noise in Industry, American Academy of Ophthalmology and Otolaryngology, Los Angeles.

NOISE has been blamed for all manner of human ills, from hearing loss to changes in chromosomes and the increase in admissions to mental hospitals.

The definition of noise—"unwanted sound"—implies that the effects of noise exposure may be highly individual. Consequently, whether noise becomes a mountain or a molehill may to a great extent depend on the listener.

At first glance, the problem of evaluating the effects of noise may appear deceptively simple. Measurements of noise are fairly standard physical measurements. Lengths of exposure periods may be read from a clock, and the principal bio-

logic effects on man can be measured.

But... which of the myriad noise exposures should we measure? Which methods of measurement should we use? Which of the many effects of noise exposure do we wish to evaluate? Which parameters of exposure are responsible for which biologic effects? In what order of importance to the community and to the individual should these biologic effects be studied? And so on.

An evaluation of noise exposure involves many arbitrary decisions and presupposes existence of information, often nonexistent, about many related issues.

Ultimately, we would like to be able to predict and control the effects of any noise exposure on any individual or group, but the chance of our being able to do so is small. Our problem persists not because of the difficulty of measuring noise exposure, but because of the wide variation of human responses to noise. The measurement of intermittent and irregular noise exposure does pose some difficult problems, but once techniques of measurement have been developed, noise exposures probably can be measured with reasonable accuracy.

We are not so optimistic about measurements of the *effects* of noise exposure. Individual responses to noise exposure are highly variable, and measurements of these individual responses will necessarily encompass a wide range of values. There are many causes of this variability, including individual differences in susceptibility to noise-in-

Presented at The President's Conference on Occupational Safety, Washington, D. C., March 2, 1960.

duced hearing loss, differences in total times spent in industrial work, frequent changes of occupation, nonoccupational disease, and nonoccupationally-induced changes in hearing due to aging.

There are so many different possible individual responses to a given noise exposure that we can say with certainty only what responses will occur on the average. The concept of a statistical average implies the existence of persons whose responses are not average and whose behavior. therefore, may differ widely from that of the average group. This means that we cannot establish damage risk criteria, correction factors for nonoccupational hearing loss that accompanies age, or rating scales for establishing compensation payments that will suit everyone. Whenever it is necessary to set standards for any effects of noise exposure these standards will be determined from the average response and not from the individual response. (In spite of the many difficulties that beset the study of the effects of noise exposure on man, some headway is being made.)

In general, the effects of noise exposure may be classified as non-auditory and auditory. One nonauditory effect of noise exposure is its interference with communication by speech. This effect is well demonstrated in many practical daily situations and needs no enlargement here. Another nonauditory effect of

THE POTENTIAL COST

of noise-induced hearing loss can be high:

- If hearing conservation programs are not initiated
- If a reasonable and factual approach to hearing impairment is not assured
- If intensive research is not continued
- If employers, employees and the medical profession do not cooperate toward the common goal—a fair and equitable solution

noise is known as annoyance or the community noise problem. This phenomenon is demonstrated quite frequently, particularly in areas close to airports. The speech interference effect of noise can be measured quite readily.

On the other hand, how does one measure annovance? Obviously by some measure of community reaction, but can we be sure the community is reacting only to noise? Several such surveys have shown that reaction to noise depends upon many things, such as the fear of injury from overhead flying aircraft, the possibility of loss of property value, the time of day or week, the time of year, and many other factors which have no part in the noisemaking. These additional variables have made measuring community reaction extremely difficult.

With this in mind, consider for a moment some of the problems posed by community noise. We have always had the noisy milkman or rubbish collector. More recently it has become the noisy motor vehicle and still more recently the noisy airplane. Prior to the airplane we had become quite accustomed to the milkman, rubbish collector and noisy vehicle. Complaints were made but no one really made any serious efforts to eliminate the noise. Even the sound of the piston engine airplane with its low rumble came and went with little notice. Shortly after World War II the jet military airplane became quite commonplace, and with its husky screaming roar and sonic booms came an avalanche of complaints from the public.

The transition from the familiar slow-moving piston engine plane to the unfamiliar fast-moving ghostly jet appeared to be the straw that broke the camel's back. Community noise became a serious problem almost overnight. Why? Were the few additional decibels enough to increase the annoyance that much? Or was the public unprepared for the sudden intrusion the jet had made into its innermost sanctum, the home?

Millions of dollars have been spent to discover the answer. We are still as far from knowing what dictates community reaction as we were five years ago.

Suddenly the annoying aspect of noise has changed from a molehill to a mountain. Public reaction is demanding quieter airplanes, rearranged airports and zoning laws governing airport locations. National and international organizations are demanding noise suppression and noise control ordinances. Traffic noise has become important enough to demand a separate international committee charged with setting standards for measurement, reduction, and allowable levels.

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TABLE I-CLASSIFICATION OF HEARING LOSSES

Class		db loss at 500, 10 00 cps in better es	- 1
1	Normal	Less than 15	Within normal limits
11	Near normal	More than 15 Less than 25	No difficulty with ordinary conversation at distance up to 20 ft.
Ш	Mild loss	More than 25 Less than 40	Difficulty with ordinary conversation when distance exceeds 5 ft.
IV	Moderate loss	More than 40 Less than 65	Difficulty with loud conversation when distance exceeds 5 ft.
٧	Severe loss	More than 65 Less than 75	Difficulty with shout when distance exceeds 5 ft.
VI	Profound loss	More than 75 Less than 85	Difficulty with shout at less than 5 ft.
VII	Practically total loss		



Devices and Ideas to Help Your Safety Program

By Arthur S. Kelly, Industrial Department, NSC

LP-Gas Tank





LOOKING at the photograph with the arrow, you'd think the overhang on this tank is sufficient to protect the valve fittings. An accident was reported, resulting in serious injury to the operator when he backed his lift truck at an angle into protruding rodstock. The rod struck the nipple connection of the shutoff valve on the propane fuel gas tank, causing the valve to shear.

The possibility of violent explosion is obvious.

The maintenance foreman at American Meter Company, Erie, Pa., received the task of protecting the

valves. Rather than burden the truck body with a heavy plate guard surrounding the tank, as had been suggested, the foreman took another approach. He contrived a steel plate disc drilled with a strap steel clamping arrangement to fit over the recess in the top of the tank, providing protection for the tank fittings.

There's an additional advantage in this device. It allows quick, easy access to all fittings for valve adjustments and tank changing. Submitted by Harold L.

Althouse, R.N.

See-Through Glass Eye

GLASS EYES have been used in many ways to emphasize the folly of ignoring or denying need for personal eye protective equipment. We present a glass eye a person really can see through.

R. A. Koy, United States Gypsum Company, New Orleans, drilled out the pupil of a glass eye and placed the eye over a hole in the top of a box. As shown, the box is painted black and is secured to a pedestal.

The inside of the box is painted aluminum. Louvers are cut in the sides of the box to allow sufficient light for viewers to peek through the eye and read a sign on the box bottom: "Let this not be your last look—wear eye protection."



Nelson's Triangle

A SUGAR PLANTATION in Hawaii furnishes an idea for slinging heavy shafting and other pieces of mill machinery which have their weights unevenly distributed. Proper slinging in such cases is a time-consuming, individual adjustment.

The key to a simple, safe solution has been developed by Richard Nelson, Jr., mill engineer for Wailuku Sugar Company, Wailuku Maui, Hawaii. Mr. Nelson's answer to this problem is a triangular steel plate, ¼-

in. thick, with four keyhole-shaped slots cut in it.

The ends of two %-in. chain slings are passed through these slots. Links of each chain leg can quickly be changed by pulling the chain through the hole to the desired length and dropping a link into the slot.

Now known as The Nelson Safety Chain, this device can be made for any size chain. I. W. Mist, safety adjuster, C. Brewer and Company, Hilo, Hawaii, submitted the idea.



National Safety News, June, 1960

MAY WINNER

B. E. CLARK, JR., of the Chemical Processing Dept., General Electric Co., Richland, Wash. was the winner of the May contest. Mr. Clark submitted "Safety Detector," a lighted board which detects whether a person is guessing, lying, telling the truth, confused, or "taking the Fifth."



Glasses for the Job Are Different

Correction, lenses and frames suitable for personal use may not fit work requirements

EACH JOB has its own visual requirements which must be considered in providing eye protection for the individual. Ophthalmic specialists experienced in industrial practice realize this and prescribe accordingly. Prescription, selection of frame size and lens type for the job may be quite different from those suited to off-the-job pursuits.

Information needed in giving the individual the visual assistance needed to perform his work safely, comfortably and efficiently includes the following:

1. Work performed. The visual specialist must know the nature of the work done by the employee. A mere job title is not enough. Is the employee required to attend closely to his work and make fine discriminations, or is only casual attention to gross detail demanded? Questioning the patient or his employer will provide these details.

2. Work positions. Does the patient do much climbing or work aloft? If so, smaller and more peripherally located bifocal segments will enable him to climb, move about and work aloft more securely and comfortably. For some jobs bifocals may not be desirable.

3. Frequency and nature of seeing tasks. At what distances are these performed in relation to the eye level. This information is especially important in determining the lens power needed and the location of bifocal and trifocal segments. The principal, intermediate and oc-

casional work distances should be learned from the patient or his employer.

4. Visual span. What is the extent of the work area to which visual attention must be given? This

factor will affect frame selection and lens prescription. Many occupations require a larger eye size than is normally used to provide a wide angle of vision. This is im—To page 121

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By BILL ANDREWS

When a no-accident record crashes, the program may slump. Is it OK to sweep a minor accident under the rug to keep up the morale? Our Safety Engineer gives a young colleague some straight talk on the practical aspects of this question

The Record and Morals

June 8, 1960

I PASSED THE DOOR of the medical center of the Lemmerton plant and heard the high voice of the redheaded R.N. scolding a patient. "Joe, you could just as well have lost that finger. You've been told and told about rings... I know it's your wedding ring, but you tell Mary I said you'll be a better husband with a whole hand and a job than you will with a crippled hand and living on a compensation check... Tell her I'll chaperone you while your ring is off during working hours."

I went on into the safety office. Sarajean Cane was cutting a mimeograph stencil, and she didn't stop for me—just nodded to the door of Bill Malloy's private office. Bill was on the phone rumbling in his voice of doom tones:

"Mr. Harding, I have some responsibility in this matter, too. I can't order a shut-down, but unless there is a correction of the condition, I'll have to make a report to the superintendent . . . No, I haven't made a report . . . Yes, I want to help . . . Right, Mr. Harding, my assistant will be down there in five minutes with those diagrams . . . Right, and if you feel we're not being completely realistic, call me again, and I'll come down myself . . . Thanks. G'bye."

He waved me to a chair, went to the door, and barked, "Okay, Lou, Harding's ready to listen. Get down there now. Talk soft, but if they throw any blocks, call me. Get going!"

Bill slammed the door shut and returned to his chair.

Bill is safety director of the newest and biggest plant on the project, and I've been giving him lots of time and attention this last month. The plant has still to have its first disabling injury.

Bill leaned back, lit a cigar, and poured us coffee from a thermos. "Anything new?" I asked.

Bill grinned. "Yes," he said, "there is. The superintendent still loves me. Your suggestion worked out fine—better than we expected. After I persuaded him (or black-mailed him) into making that one tour of inspection with me, I figured I had gotten all I could expect of him for awhile. He had made his demonstration of interest in accident prevention, and I took the ball from there, putting the pressure on the supervision.

"But a week ago, we completed our first month in this plant, and we did it with no disabling injuries. Okay, you know and I know that doesn't really mean a thing. We had half a dozen first-aid cases that could have spoiled the record if they'd been a little more serious—or even if a doctor had made a different decision about whether a man should go home or not. Maybe the super knows that, too; maybe he doesn't. What he does know is that we have a clean record, and that my report to that effect has gone

over his desk and on to the home office. He likes the taste of it.

"What I didn't expect was what happened yesterday. The super called me and suggested we make another safety inspection! We spent all afternoon at it, and we didn't miss much. And this time, instead of walking along doing the stern and silent act, he spoke to several foremen himself—and spoke intelligently, too. The word has gone around the plant that the old man is getting hipped on safety—I've seen that it got around!

"So now I'm putting the squeeze on supervisors, like you just heard me do with Harding."

I congratulated him, and made a motion to go. Bill waved me back into my seat. "Look," he said, "you steered me straight when I was getting started here. I'm grateful. Now I need some more advice. What happens when our luck runs out, and we take a disabling injury?"

"What do you mean, what happens?" I asked. "You investigate, analyze, report, correct, and go on fighting."

"I know, I know," Bill said. "But this is different. This is a record to shoot at, and the super's enthusiasm hangs on it. I don't want to lose that enthusiasm and support before I get the program rolling."

"Look, Bill," I said, "you've been lucky, and you could keep on being lucky for a few more months. Or that phone could ring in five min-

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news briefs

No acrobats wanted

A maintenance job that formerly required suspending a chain fall on an overhead beam has been made less hazardous by substituting a hooked rod for the wire rope and chain rigging. The rod can be moved quickly, and the chain block can be attached more easily to the formed eye of the rod. The job is not only safer, but faster.

Free nylons, girls

Allis-Chalmers employees were encouraged to buy safety shoes by gifts of hosiery. With a pair of men's shoes at \$5.99 a pair, a pair of socks was included: with a pair of women's shoes at \$3.99, a pair of nylon stockings was thrown in.

Air traffic control

By 1963, the nation's airways will have the beginnings of automated traffic control. A network of computers will swap speed and flight plan data and warn of conflicts as much as half an hour before the planes reach the collision point.

Clobbered at congress

Many a safety man has winced at the hazards in hotels where safety meetings were held. Evidence that their fears are not entirely groundless turned up recently in the form of a suit against an Ohio hotel. A magician sued for head injuries he says he received while running to take a bow before the All-Ohio Safety Congress two years ago. The suit claims the edge of a low-hanging balcony was hidden by a backdrop curtain.

They need us

These nuggets were gleaned from a survey of small factories: A works manager was unable to find the key to a drawer in which he claimed sterile dressings and antiseptics were kept. A worker who had often dropped ingots on his toe assured the

inspectors, "You don't have to worry, the nails just come off and grow again." An employee who dipped his arms into an electroplating tank said, "It stings, but it doesn't bother me, I'm immune."

Cabs carry warnings

In New York City 12,000 taxicabs carried fire prevention stickers during a recent three-month period. Two stickers were used. One read "Three out of five fires are caused by a careless cigarette or a careless match." The other was "Never leave a child alone, or near matches. It means fire and tragedy."

Mouth-to-mouth infection

A New York policeman responding to an emergency call found a woman having breathing difficulty. He tried to help her by using the mouth-to-mouth procedure. His efforts were futile and the woman died—of meningitis. At the last report, the officer was confined to his home until his doctors decided whether he had contracted the disease.

Clean hands

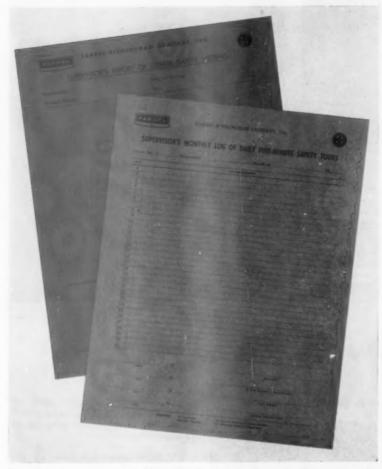
A man leaving the men's room was told by his supervisor to observe the sign that said, "This is a food plant. Wash your hands before returning to work." The man looked puzzled and answered, "But I'm not returning to work. I'm going to eat my lunch."

Tether for tipplers

John Lichty, who maintains an establishment of relaxation and refreshment in Lander, Wyo., has installed safety belts along his bar. He fastens them around customers who show signs of unsteadiness on the stools.

Jim Saul

A Supervisor's Monthly Log



Two forms for supervisors used by Farrel-Birmingham Company. One is a monthly log of the foreman's daily five-minute safety tours. The other is his report of the Center Safety Meeting which he holds monthly. Forms are printed on colored paper.

A FOREMAN who takes five minutes a day to check accident hazards or talk with some employee on work methods and conditions can cover quite a few safety items in a month. And when you multiply this by the number of foremen in the plant, the total becomes impressive.

Not all of the items are of tremendous importance but a month's activity might include one or two that could prevent an injury.

Special forms give added prestige to this part of the safety program and help to systematize the records. The two forms shown in the accompanying illustration were developed by Louis G. Enderlin, administrative assistant in the Industrial Relations Department of Farrel-Birmingham Company, Ansonia, Conn.

One of these, *The Supervisor's Monthly Log of Daily Five-Minute Safety Tours* has one line for each day of the month. It is printed in blue ink on coral-tinted paper.

The Supervisor's Report of Center Safety Meeting is in green ink on yellow paper. The color scheme makes these reports stand out among other papers on a desk.

Each report is signed by the supervisor and routed to the general foreman or superintendent, plant manager, and the Industrial Relations Department.

Typical comments recorded by foremen are:

...Looked over bench tools. Talked with new carpenter.

... Checked machines in carpenter shop.

... Talked with millwrights working on Crane No. 2422.

... Checked carpenter shop housekeeping.

... Checked grinding wheel tools in erecting shop and ordered new canvas.

... Had men use dollies for moving to save back strains.

... Checked catwalk on foundry roof and repaired same by flask yard crane.

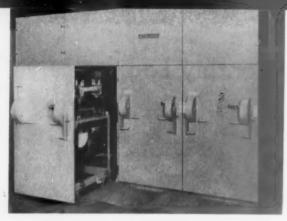
In addition to important items turned in by foremen, it is believed that this form has been helpful in keeping them reminded that preventing accidents is part of their job and they should concentrate on it for at least five minutes a day.

The other form, Supervisor's Report of Center Safety Meeting, is filled in each month after the foreman has held his regular safety meeting with his men. In this connection, the company has made effective use of the National Safety Council's Five Minute Safety Talks for Foremen.

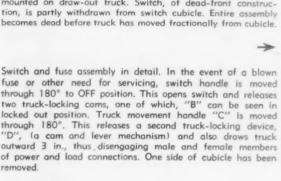
Announce Four Additions To Hygienic Guides

The American Industrial Hygiene Association announces the publication of four new additions to the Hygienic Guide Series, Magnesium, Nitroglycerin, Metal Hydrides, and Molybdenum. This brings the total published Hygienic Guides to 92.

The pattern followed in the new guides is the same as in all previous subjects, containing sections on hygienic standards, properties, industrial hygiene practice, specific procedures, and references. Each section contains the latest authentic information available. For example, the guide on nitroglycerin points out that most dynamite now involves the use of ethylene dinitrate glycol as an additive to the nitroglycerin, and that vapor exposure to the mixture is primarily due to the ethylene glycol because of its much higher vapor pressure.



Unit substation with interrupter switch and fuse assembly mounted on draw-out truck. Switch, of dead-front construction, is partly withdrawn from switch cubicle. Entire assembly becomes dead before truck has moved fractionally from cubicle.





More Power-Less Hazard

Unit substations provide a safe, flexible distribution system for industry's growing electrical power needs

By NEAL BROOKS

Application Engineer, Continental Electric Equipment Company, Cincinnati, Ohio

A SIGNIFICANT factor in the increasing use of electric power is the large number of unit substation installations. Industrial plants, office buildings, warehouses, airports, shopping centers, hospitals and other institutions are using this aid to economical distribution.

This development is of interest to safety men for three reasons:

1. A new set of safety factors is introduced. The incoming service in the unit substation of an industrial or commercial power user may be as high as 15,000 volts. The electrician needs added protection from accidental contact with a live line or part.

2. The building needs reserve pro-

tection from fault current over and above that provided by the power utility before the unit substation was installed. (A fault current is a surge of lightning-bolt proportions which occurs when the electrical system is suddenly shorted out). Unless an interrupting device of adequate capacity has been installed, an explosion and fire could occur. With the consumption of electricity doubling each 10 years, the power utilities are expanding their distribution facilities. This increases the risk from fault current.

3. The safety engineer is also concerned with savings. Management lends a more attentive ear when it can be shown that a device will pay for itself in a few years.

A unit substation consists of three integrated sections:

1. An incoming line section having disconnecting means and protective equipment, such as a switch and fuse.

2. A transformer section which reduces the voltage from that received from the utility to that used in the plant system.

3. A building voltage switch and protective section.

With the installation of the unit substation, the distributing section is extended through the plant, with the use of feeder-type bus duct for highly concentrated load areas, or with plugin duct to insure a completely flexible distribution system. This makes electricity available in any area. As plant activity expands, the system can be added to.

When the unit substation is thus accompanied by extended use of feeder and plug-in duct, the following benefits result:

1. Power can be purchased at "wholesale" (medium voltage) rates.

2. There is less voltage drop because electric energy is delivered to the approximate area of operations at a higher than normal voltage. (Electrical energy is transmitted more efficiently at a higher voltage).

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ASA in New Home



Cyril Ainsworth, deputy managing director, and Vice-Admiral G. F. Hussey, Jr., managing director, ASA, confer in the latter's new office.

Much-needed space for the editorial department was acquired in the move. The staff, left to right are: Miss Dorothy Hogan, publications editor; Henry S. Myers, assistant publications editor; Mrs. Susan Potter, editorial assistant; Miss Ruth Mason, editor-in-chief, and Miss Margaret J. Lovely, production and art editor.

FORCED TO VACATE the old Grand Central Building which is giving way to a new 55-story building, the American Standards Association is now established in its new home at 10 East 40th Street, New York. The building, some 30 years old, is maintained in excellent condition. The entire ninth floor and part of the eighth were laid out with detailed floor plans provided by ASA.

The move has given ASA and its member bodies a number of benefits. ASA is the clearinghouse and coordinating body for voluntary national standards, and its services are available to all national groups. National Safety Council, for inzations occupying space along the sprawling halls and corridors.

One new feature that members of ASA sectional committees will appreciate when attending meetings at the new headquarters is air conditioning. The meeting facilities will also make a hit because of their flexibility. There is one large room that can be divided by soundproof folding doors into as many as four smaller meeting rooms, each with its own entrance.

The new mail room has been efficiently laid out to insure faster processing of reproduction of documents, orders for American Standards, and mailings.

Internal communications have also been improved by a direct dialing telephone system that takes much of the load off the switchboard operator. This system permits conference calls with up to



stance, sponsors 19 sectional committees, eight of these jointly with other organizations. The objective is to develop standards of national acceptance through the use of ASA's impartial machinery. A standard is approved as an American Standard only if ASA is satisfied that the document is supported by a consensus of all parties at interest.

The new offices increase ASA's efficiency, since all facilities but the mail and shipping room are on the one floor completely occupied by the organization. In the old building, conference rooms and offices were scattered among other organi-

five participants, another factor that speeds up communications.

The filing section boasts an openshelf filing system. This new system permits greater utilization of available space with easier and faster reference to current association records. Since most of ASA's work involves correspondence among thousands of committee members, and draft after revised draft of proposed standards, an efficient filing system is a must. It also accommodates the records and correspondence of ASA company members, member bodies, and associate members.

A NATIONAL SAFETY COUNCIL TECHNICAL SERVICE

INDUSTRIAL SAFETY COURSES IN COLLEGES AND UNIVERSITIES

Copies of this data sheet will be available for order within 30 days

1. The qualifications for safety engineers are broad and cut across many other branches of engineering. Safety engineers are often called upon to examine plans and specifications for machinery, equipment, processes, and plants to determine whether safety requirements have been met. They may assist in the development and installation of machine guards and safety devices. They may participate in the planning of machine design and plant layout that eliminates hazards at the source. They must know how to keep records and how to make statistical reports. They frequently work with physicians and industrial hygienists.

2. Because of this broad scope, few colleges or universities grant degrees solely in safety engineering. Subjects in the field are more often offered in the curriculum for industrial engineering, mechanical engineering, or industrial management.

3. Anyone who desires to become a safety engineer should contact recognized colleges and universities offering degrees in the previously mentioned branches of engineering—and, particularly, ones that are found to

This data sheet is one of a series published by the National Safety Council, reflecting experience from many sources. Not every acceptable safety procedure in the field is necessarily included. This data sheet should not be confused with American Standard Safety codes, federal laws, insurance requirements, state laws, rules and regulations, or municipal ordinances.

offer a degree in safety engineering. Those who are not seeking a degree in safety engineering will find in the following list a number of courses which are available separately or as parts of specified curricula.

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ACKNOWLEDGMENT

This data sheet is a current adaptation of informational material previously published by the National Safety Council. Content was prepared by the staff of the Council's Industrial Department on the basis of data submitted by the listed institutions.

University or College	/40	Safety in Engineering C	Sello Degree	Eremion E.	Daning Course	Course	Individual To Contact and Courses and Subjects Offered
University of Akron, Akron 4, Ohio	58	2	B.S. Industrial Management		0	/0	John Kidney, 1355 Sprague Street, Akron 5, Ohio. Course: Industrial Safety. Causes of accidents, fun- damentals of accident pre- vention, maintenance of health standards, safety organization.
University of Alabama, University, Ala.	•	2	B.S. Industrial Engineering		•		PROF. G. C. K. JOHNSON, Head, Department of Indus- trial Engineering. Course: Industrial Hygiene and Safety.
Alabama Polytechnic Institute, Auburn, Ala.	•	5 quar- ter hours			•		Asst. Prof. W. W. Morgan, Department of Industrial Management, School of Engineering. Course: Safety Engineering. Principles, practices, organizations, and procedures for industrial accident prevention and plant protection.
University of Alaska, School of Mines College, Alaska		•					EARL H. BEISTLINE, Dean, School of Mines, or Safety Engineer, U.S. Bureau of Mines, P.O. Box 2259, Anchorage, Alaska. Course: Mine Rescue and First Aid. Required for all B.S. degrees in School of Mines.
University of Arizona, Tucson, Ariz.	•	3			•		DAVID L. WINDSOR, Registrar. Course: Mining Engineering. Mine atmospheric control and safety.
University of Arkansas, Fayetteville, Ark.	•	2	B.S. Industrial Engineering		•		PROF. HUGH F. DENNETT. Course: Safety Engineer- ing. Principles of acci- dent and industrial disease prevention; organization and operation of in- dustrial safety and hygiene programs.
Bradley University, Peoria, Ill.		3	B.S.		•		B. M. CUNNINGHAM, Dean, Bennett College. Course: Industrial Safety.

University or College	/.	Safety in Enginees.	Degree Degree	Extension	Dening Course	Individual To Contact and Courses and Subjects Offered
Columbia University, Teachers College, New York 27, N. Y.	•	3		•		PROF. WILLIAM W. WAITE, Department of Industrial Engineering. Course: Accident Prevention and Safety Engineering.
University of Dayton, Dayton 9, Ohio		• 1	Associate in Engineering		•	ROBERT I. MITCHELL, Industrial Engineering Department. Course: Industrial Safety. Basic principles of industrial accident prevention, mechanical safeguards, fire prevention, occupational disease, hygiene and first aid, safety codes, compensation, and safety education programs.
Fairleigh Dickinson University, Rutherford, N. J.		• 3			•	VITO L. SALERNO, School of Engineering and Science. Course: Industrial Safety. Organizing for safety; accident records to determine injury sources and causes; case studies and local plant field trips; hazards; plant layout; safety psychology; hidden cost of accidents; value of safe practices to labor and management.
University of Florida, Gainesville, Fla.	•	2			•	E. P. MARTINSON, Head, Industrial Engineering Department. Course: Industrial Safety. Organization of safety work in industry; accident causes and legal responsibility of employer and employees. Course: Accident Prevention Engineering. Accident and industrial health safeguards; protective design in plant and equipment; safe methods training. Course: Radiological Safety Engineering, available for graduate major credit. Detection, measurement, and shielding of radiation; operation and problems in radiological safety; maximum permissible limits; and disposal of radioactive wastes.

		/8	Degree	/	
University or College	/.	Sofory in Engin	Degree	Ereminon Cou	Individual To Contact and Courses and Subjects Offered
University of Houston, Houston 4, Texas	•	3	B.S. Industrial Engineering	•	DR. J. T. ELROD, Chairman, Industrial Engineering Department. Course: Industrial Safety.
University of Illinois, Urbana, Ill.		• 3			PROF. GEORGE W. HARPER, 234 Mechanical Engineering Building, College of Engineering. Courses: Industrial Safety, Safety Engineering (all engineering curricula), Advanced Safety Engineering, Industrial Fire Protection, Mine Safety Engineering.
Illinois Institute of Technology, Chicago 16, Ill.	•	2 5			PROF. GERALD L. MAATMAN, Director, Department of Fire Protection and Safety Engineering. Course: Fire Protection Engineering Course: Industrial Safety Engineering
Kansas State University, Manhattan, Kan.		2			DR. IRVIN REIS, Head, Department of Industrial Engineering. Course: Industrial Safety.
University of Kentucky, Lexington, Ky.	•	• 2			OLIVER G. GARD, Associate Professor of Mechanical Engineering. Course: Fire Protection Engineering. Course: Safety Engineering. Industrial accident prevention; accident statistics and analysis; industrial safety hazards; protective equipment; general safety.
Louisiana State University, Baton Rouge, La.		• 2			Albert L. Clary, Registrar. Course: Safety Practices and Industrial Hygiene.
Massachusetts Institute of Technology, Cambridge 39, Mass.	•	2			PROF. E. R. SCHWARZ. Course: Fire Protection and Safety. Fourth year elective for several courses in the School of Engineering.
University of Michigan, College of Engineering, Ann Arbor, Mich.	•	1 2 3		:	R. E. CARROLL, Director. Course: Industrial Accident Prevention. Course: Industrial Hygiene. Course: Radiation Shielding, Nuclear Engineering.

University or College	/3	Soft in E	of in Oinoni	Degree Degree	/	Chensis	Down Course	Individual To Contact and Courses and Subjects Offered
Michigan State University, East Lansing, Mich.		•	3			•	•	PAUL A. MILLER, Provost. Course: Safety Management. Operation of a safety program; locating and correcting hazards; new product safety. Course: The Prevention and Control of Fire and Accidents.
Mississippi State University, State College, Miss.		•	3				•	J. H. McLendon, Registrar. Course: Safety in Shop Management. Principles of safety as they apply to physical plant, machines, hand tools, shop layouts, and personnel.
Missouri School of Mines and Metallurgy, Rolla, Mo.			3				•	DR. GEORGE B. CLARK, Chairman, Department of Mining Engineering. Course: Mine Hygiene and Safety Engineering.
Montana School of Mines Butte, Mont.	•						•	D. C. McAuliffe, Dean of College and Placement Director. Course: First Aid Training, required of all sophomores. Course: Mine Rescue Training, required of all seniors. Certificates awarded by U.S. Bureau of Mines.
Montana State College, Bozeman, Mont.	•		3				•	SIDNEY A. WHITT, Professor of Industrial- Engineering. Course: Industrial Safety Engineering. Classification of hazards; accident statistics; safety codes; machine guarding; mechanical, electrical, and chemical hazards; ventilation; respiratory and safety devices. All curricula as elective,
University of Nebraska, Lincoln 8, Neb.	•		2 3	B.S. B.S.		•	•	PROF. N. H. BARNARD, Chairman, Department of Mechanical Engineering. Course: Safety Engineering. Course: Industrial Safety.
New York University, Center for Safety Education, New York 3, N. Y.		•			•	•		Walter A. Cutter, Director. Courses: Nondegree, certificate courses presented by the Center for Safety Education of the Division of General Education and Ex- tension Services School: Accident Prevention; Industrial Hazards; Collection, Analysis, and Use of Accident Data; Technical Sources; Psychology of

			Coolis Office Conficulty		/	/	Course	
University or College	/3	Safer in Eno:	Crootiis Office	Degree		Day Course	Individual To Contact and Courses and Subjects Offered	
							Accident Prevention; Fire Prevention and Protection In- spection; Accident Prevention for Motor Vehicle Fleets; Employee Safety Training; Functions of Management and Supervisors in Accident Pre- vention; Industrial Hygiene and Occupational Diseases; Principles of Safety In- spection; Marine Accident Prevention.	
North Carolina State College, Raleigh, N. C.		2	2			•	DR. R. G. CARSON, School of Engineering. Course: Industrial Safety.	
North Dakota State College, Fargo, N. D.	•	•				•	COL. MARION B. RICHARDSON, Professor and Chairman, Industrial Engineering. Course: Safety Engineering. Prerequisite: Introduction to Industrial Engineering, junior standing, or departmental approval.	
Ohio State University, College of Engineering, Columbus 10, Ohio	•	3 3 2				•	DR. T. H. ROCKWELL, Industrial Engineering Department. Course: Safety Engineering, Course: Advanced Safety Engineering, Special Problems. Course: Graduate Seminars on Special Problems.	
Oregon State College, Corvallis, Ore.	•					•	THE REGISTRAR. Course: Safety in Industry. Prerequisite: junior standing.	
College of the Pacific, Stockton 4, Calif.		• 2	2	B.A.		•	CHRIS KJELDSEN. Course: General Safety Education.	
Pennsylvania State University, University Park, Pa.		3		B.S.		•	PROF. RAYMOND FARWELL, Department of Industrial Engineering. Course: Industrial Safety.	
University of Pittsburgh, Pittsburgh 13, Pa.	•				•	•	W. R. TURKES, Professor and Chairman, Industrial Engi- neering Department. Course: Industrial Safety Engineering.	
University of Southern California, Los Angeles 7, Calif.		• 2		B.S		•	THE REGISTRAR Course: Industrial Safety and Hygiene.	
Southern Methodist University, Dallas 22, Texas	•	3	1	M.S.	•		C. H. SHUMAKER. Course: Industrial Safety.	

			/	conficulty (confirmation)	/	/	/	- Contract of the contract of
University or College	/	Solon in	Sofor in Engineering	Se Degree	/-	Extonsi	Syening Course	Individual To Contact and Courses and Subjects Offered
Texas A & M College, College Station, Texas			3 3 2	B.S. Industrial Education B.S. Industrial Education M.S. Industrial Education				CHRIS H. GRONEMAN, Head, Industrial Education Department. Course: Industrial Accident Prevention. Course: Industrial Safety. Course: Problems in Industrial Safety.
University of Toledo, Toledo 6, Ohio	•		2	B.S. Industrial Engineering		•		MILTON NETTER, Professor of Industrial Engineering. Course: Industrial Safety Engineering.
Utah State University, Logan, Utah		•	3	B.S.	•	•	•	DR. CARL R. BARTEL, Assistant Professor of Industrial and Technical Education Department, Course: General Safety Education. Psychology and philosophy of accident causation and prevention in school, home, community, and industry.
Virginia Polytechnic Institute, Blacksburg, Va.	•		3				•	DR. LOUIS A. PARDUE, Vice-President. Course: Industrial Safety Organization. Fundamental principles and techniques of safety engineering in industrial enterprises. Course: Safety Practices with Mechanical Equipment. Mine ventilation—mine gases, detectors, systems of ventilation, causes and means of preventing mine fires and explosions.
University of Washington, Seattle 5, Wash.	•		2 1-5 3				•	MRS. ELINOR CLOW, 105 Administration Building, Curriculum Secretary, Registrar's Office. Course: Industrial Safety. Course: Forest Fire Control. Course: Industrial Hygiene Techniques.
University of Wichita, Wichita 14, Kan.	•		2	B.S. Industrial Education		•	•	WILLIAM W. ZOOK, Assistant Professor and Acting Head, Department of Industrial Engineering. Course: Safety Engineering.

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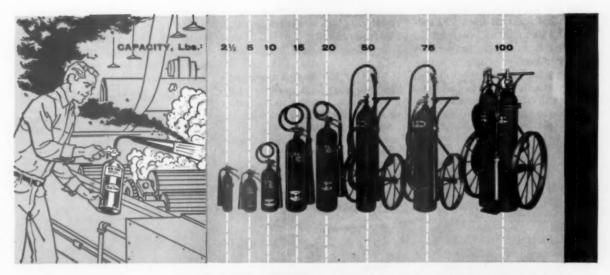
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to combat flammable liquid and electrical fires

To protect your plant against all flammable liquid and electrical fire hazards, Pyrene-C-O-Two distributors carry a complete size range of carbon dioxide extinguishers. Each unit has been awarded a high U.L. rating and also is approved by Factory Mutual.

Hand portable models are available in 2½, 5, 10, 15, and 20 lb. units. Their exclusive Squeeze-Grip valve makes operation simple and quick . . . just pull the lock pin and squeeze the lever to open; release to close. Pressurized carbon dioxide snuffs out flames in seconds! Where fire hazards call for mobile extinguishing equipment, you can choose from 50, 75 and 100 lb. wheeled portable models. Each is equipped with horn, long hose and easily operated valves . . . available with either steel wheels or rubber tires. Carbon dioxide extinguishers are excellent for industry because carbon dioxide will not damage machinery, equipment, woodwork or fabrics.

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Safer Sport for Boating Fans

As boating grows in popularity, so does the size of the water accident problem. Most of the victims are males of working age.

ALTHOUGH the country's population has rocketed from 130 million to 180 million in the past 30 years, water safety agencies have influenced enough people to reduce drownings to between 6,300 and 6,750 annually during this period.

The federal government has recognized the seriousness of this problem. President Dwight D. Eisenhower has proclaimed National Safe Boating Week for July 3-9, urging the 40 million Americans who go boating to follow safe boating practices and exercise courtesy on the waterways.

The National Safety Council, through its Public Safety Department-directed by Ralph Kuhli, is co-sponsoring this effort with 13 other organizations. These include: American Boat and Yacht Council, Inc.; American National Red Cross; American Yachtsmen's Association; National Council of Boy Scouts of America: Girl Scouts of the United States of America; National Association of Engine & Boat Manufacturers; National Association of Marine Dealers; National Safe Boating Association; Outboard Boating Club of America; United States Coast Guard; United States Coast Guard Auxiliary; United States Power Squadrons; and the Yacht Safety Bureau, Inc.

These sponsors, officially titled the National Safe Boating Week Committee, have sent kits of promotional and publicity materials to U.S. Power Squadrons, the U.S. Coast Guard Auxiliary, and marine dealers.

Some of the materials are sample TV, radio, and newspaper announcements; proclamations, letters to marine dealers and organizations connected with boating; and suggestions for publicity campaign timetables. Recommended activities are itemized: courtesy boat inspections, one-lesson courses in boat handling, water shows, displays of boating equipment, recognition of a "Safe Boating Queen," parades, and safety slogan contests.

Operator negligence is high on the list of major causes of boating accidents. This kind of mishap usually involves overloading, unbalanced load, standing, reckless operation, falling overboard, being thrown from the boat, too sharp a turn, operating under the influence of liquor or drugs, riding the gunwales, and failure to take precautions on approaching bad weather.

Boat owners should educate themselves in such basic safety procedures as Man Overboard Drill:

- 1. Call out "Man Overboard" to alert everyone. Swing propellers away from the man. If under way, throw a life ring without line close to the man (to assist him and to mark the spot).
- 2. Turn the boat the quickest way and approach with the man on the downwind side.
- 3. When close, throw the line (with ring attached, if needed).
- 4. If someone goes overboard to assist, he should wear a life jacket regardless of how well he swims.
- 5. Pull the man aboard and well away from propellers, or shut off the engine.

Boat operators should also be —To page 46

Why Employees Should Learn to Swim

One of every 15 accidental deaths is a drowning.

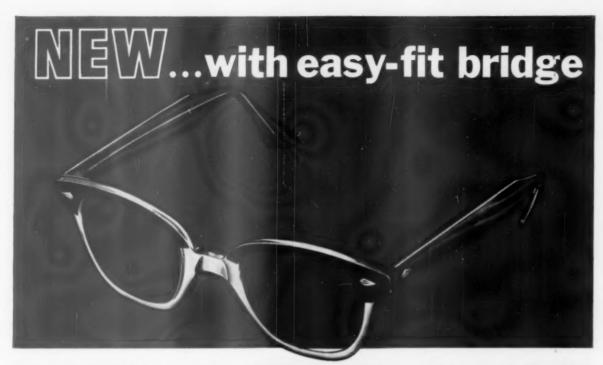
Drowning is the fourth leading type of fatal mishap.

86 per cent of those drowned are men or boys.

Two-thirds of the drowned are more than 14.

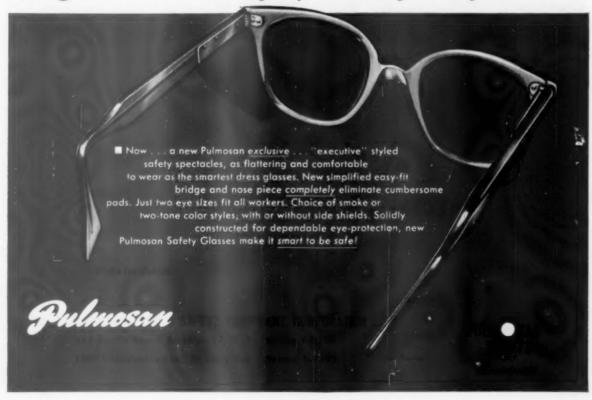
Two-thirds of the drowned weren't even swimming.

Almost half of the drowned were alone at the time.



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Boating

-From page 44

aware of the following procedures for dealing with a fuel fire on board:

1. Put out all flames. Shut off all spark-producing machinery. Put out cigarettes.

2. Close all ports and hatches, so fumes cannot blow inboard.

3. Have filled fire extinguisher close by.

4. Fill tanks with the greatest care.

 a. Outboards with integral fuel tanks—fuel from a 2-gal. (or smaller) safety can.

b. Outboards with "cruising tanks" (five or six gals.)—remove these from the boat. Fuel them on the fuel dock. (As these tanks are set in the boat, any spillage will go directly into the bilge where it's impossible to wipe it dry. Also they don't have a vent leading overboard for safety.)

c. For all tanks (including integral tanks, cruising tanks and permanently installed tanks for inboard or outboard engines)—keep nozzle (or can) in contact with fill pipe to prevent static spark. Don't spill. (Wipe up spillage at once.) Don't fill tank completely.

Open hatches and ports for ventilation and run bilge blower, both for

at least five minutes.

 Sniff low in tank compartment and low in engine compartment. If you smell gasoline, don't start the engine.

For a completely open boat, 2 and 5 don't apply.

How to Avoid Becoming a Statistic!

For those who want to avoid the dubious glamor of becoming a statistic, here's a brief checklist:

1. Take instruction in swimming. And try to become something more than an adequate swimmer.

2. Watch your step around watery areas, especially if you're weighted down with clothes.

3. Take a companion along with you on such jaunts. He or she will provide welcome assistance in case of trouble.

 Be careful at all times, but keep your guard up especially during the summer months.

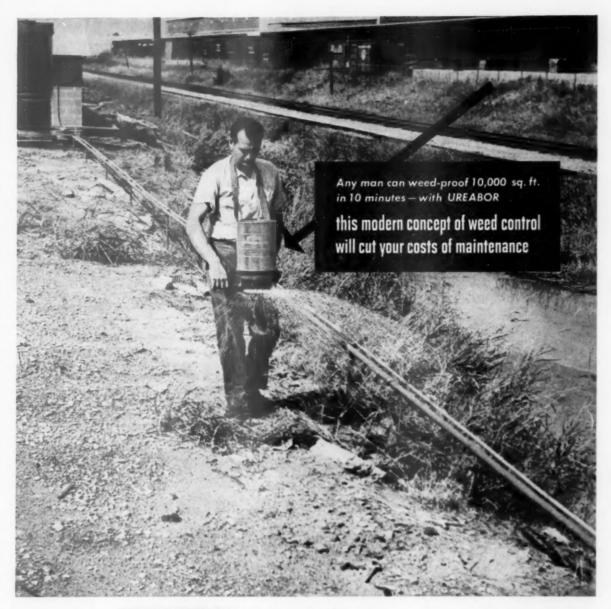
That's it! The chances are good that you'll not be numbered among the casualties who have ignored such precautions. Or so a recent nationwide study of drowning implies.

Fortunately, a good part of the country's citizens are taking this advice and using it. Despite the increase in total population, drownings in the U.S. have decreased. The rate has dropped from 1 death per 8,000 persons (1900) to 1 in every 27,000 (1958).

Based on this reduction, 16,000 people are alive this year—probably as a result of following the above four-point program for survival. This is evident in the rate drop from 10.2 fatalities per 100,000 in 1903 to 3.7 drownings per 100,000 persons in 1958.

Yet, of 6,400 individuals drowned in 1958, only about 2,300 were swimming or playing in the water. The remaining 4,100 water deaths were nonswimming fatalities: persons falling into the water from





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docks, bridges, and shores; transport accidents; recreational boating; fishing; ship repair work; plus one per cent of the total drownings which happened at home. And about 2,900 deaths were in the 15-44-year-old age group, which includes many workers.

Study Illinois Deaths

Jack Recht, senior statistician of the NSC Statistics Division, made a study recently of public accidental deaths in Illinois in 1958. He found that *swimming* in unguarded areas, especially in lakes, rivers, and gravel pits, was the most frequent circumstance in public drownings.

Next in importance was wandering, walking, playing, and falling into water from the shore and docks. This type of accident happened most often on the banks of rivers, canals, and park lagoons. Also significant among these figures were the fatalities from wading in unguarded areas and stepping into holes.

In water transport deaths, recreational boating in lakes and rivers was the chief circumstance. In most

cases the boat was upset or overturned (presumably by the occupants), or the victims fell overboard.

In some instances the victim was thrown from the boat by too sharp a turn or by action of the water. All but two deaths in this facet of Recht's study occurred to men between 15 and 65—again the worker age bracket.

As a result, the NSC Board of Directors decided at a recent meeting that the Council will conduct an "Everyone Learn to Swim" program, supporting existing organizations concerned with water safety.

The NSC Public Safety Department is inviting and encouraging participation in this program by interested governmental agencies, non-official groups and business firms.

The program urges a search for those who don't know how to swim—the ones who don't go to camp, don't enroll in swimming classes, or don't have other opportunities to learn to swim. Also, the novice swimmer is sought, so he can learn to take better care of himself in the water

The objective is to make the public aware of the importance of learning to swim. This is as essential to life as any other preparation to sustain existence.

Of course, it would be relatively simple, if each of us had an opportunity when young to receive such instruction. Like bicycle riding, this is not forgotten, nor can one unable to do so go through life without wishing he had learned to swim.

Through competent training, older people can become swimmers, if their fear of water is overcome and confidence established.

The "Everyone Learn to Swim" campaign is pointed in these broad directions.

For More Information

Pleasure Craft, a folder describing highlights of The Federal Boating Act of 1958, minimum legal requirements, and suggestions for safety, is available through the U.S. Government Printing Office, Washington, D. C.

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Frank is a good worker, but it's hot.

He's sweating. He stops working.

Takes out his handkerchief.

Takes off his glasses.

Wipes his forehead.

Wipes his glasses.

Replaces his glasses.

Replaces his handkerchief.

Returns to work.

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The Greeks Had A Word For It! *Yyiela

Hygeia (from which we take the word hygiene) goddess of cleanliness and health, daughter of Asclepius.

The Ancient Greeks established washing the hands, the face and the body as an aesthetic pleasure. They valued the act of cleansing as a means of creating a feeling of well-being, enhancing the health and beauty of the individual.

In the famous bath houses of Athens, PAX CP-2 Dispenser filled with either PAX Pharmaceutical Grade Cream Waterless Skin Cleaner or PAX Creme Soap certainly would not have been out of place; for in that practical and partly mythical world, one would expect to find skin cleansers fit for the gods.

Clean, healthy skin certainly does look and feel good ... it also makes good sense for it costs so little.

Both of these PAX skin cleansers moisturize, deodorize and nourish your skin with lavish quantities of lanolin and natural skin lubricants.

PAX Pharmaceutical Grade Waterless replaces toilet soap and is used with or without water. PAX Creme Soap is full bodied producing profuse, soft creamy suds with either hot or cold, hard or soft water. Both have really amazing cleaning ability leaving the skin sparkling clean, and there is no drying or defatting of the normal skin. They are modern washroom miracles...they bring old washrooms up to date.

When used with the famous PAX CP-2 Dispenser, hey are per smallzed too, therefore sanitary. Each ime you wash, only you touch the skin cleanser, no matter how many have washed before you.

Both of these PAX products are formulated to the same quality standards as the finest cosmetics, soaps and shampoos.

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Circle Item No. 15-Reader Service Card

Occupational Health

-From page 17

Hose. They found that by measurements of straight runs and elbows of 4, 5, and 6-inch round flexible metal hose, friction is less than that of standard round galvanized sheet metal ducts, and less than half that of equivalent sizes of flexible fabric-type hoses.

It has been frequently indicated

that the presence of carcinogens in the atmosphere may be the cause of lung cancer. E. Sawicki, W. Elbert, T. W. Stanley, T. R. Hauser, and F. T. Fox determined Benzo-(a) pyrene content in the air of 140 American communities.

In the samples collected these investigators found that Benzo(a)-pyrene was present in almost all cases, although the range in concentration of the chemical is broad. Their results were reported in *The*

Benzo(a)pyrene Content of the Air of the United States.

Radiation. The need for a well-planned and executed communication program in protection matters was discussed by L. J. Cherubin in Communications Media Employed in Health Physics at the Knolls Atomic Power Laboratory. He feels similar communication problems prevail in administering industrial hygiene and safety programs. It has often been felt by those dealing with protection programs that "communication is the world's big problem."

A study which determined the parameters of hazards existing from use of photofluorographic X-ray units was offered in a paper presented at the Industrial Health Conference at Atlantic City, N. J., and published in the Journal of the American Industrial Hygiene Association, Vol. 20, No. 2, April 1959.

The authors of this paper reported the measurements made in the gonadal area of subjects, of technicians' exposures, and of persons in the area of such units. Photofluorographic Study, presented by E. J. Baier at the Rochester health conference, indicated there were significant reductions in X-ray exposures when the recommendations made in the initial paper were carried out. These included the use of cones, diaphragms, and filtration.

R. L. Hoover commented on the industrial hygiene Aspects Associated with the Decontamination of a Building Contaminated with Radium. The author discussed the problem and described the solution of the decontamination of a five-story office building contaminated with radium as far back as 1912. The contamination was not discovered until 1959. Radiation exposures in some of the rooms were as high as 500 mrem/hr, and radon levels were in the order of 10-5 uc/cc in some closed areas.

Chemical and Analytical. Nine Years' Experience With the Davis Halide Meter was presented by A. W. Schaffer and H. R. Hoyle. They indicated this meter is the best portable instrument so far encountered for evaluation of concentrations of organic chloride vapors in air. The problems described with the use of this instrument were the





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inhibited 1,1,1-trichloroethane) provides two important advantages for plant operating people. First, it assures a remarkably low corrosion rate, even for corrosion-sensitive aluminum, zinc, and white-metal alloys. And Chlorothene NU cleans other metals, many non-metallic materials besides. The second benefit of high stability is easy recovery-usually with existing equipment. Thus, Chlorothene NU can compare favorably with flammable solvents on a dollars and cents basis.

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effect of water vapor, inability to zero the instrument, effect of slit width, effect of high concentrations of organic halide vapors on subsequent use, and required calibration.

Other papers submitted in this section dealt with specific analytical procedures. Some of these are the Determination of n-Butylamine in Air, Determination of Dibutyl Mercury Vapor in Air, Mercury Urinalysis—An Effective Industrial Hygiene Control, Determination of Mercury

in Blood, Determination of Decaborane and Pentaborane by Means of Triphenyl Tetrazolium Chloride, Determination of Manganese in Air in Biological Material, and Separation of Fluoride by Ion Exchange-Application to Urine Analysis.

Toxicology. Vinyl Chloride—Acute Inhalation Toxicity to Experimental Animals was discussed by E. Mastromatteo, A. M. Fisher, E. Christie, and H. Danzinger. The authors indicated that there were

two deaths as a result of exposure to vinyl chloride. It was because of the scarcity of toxicological information on this material that this study on acute inhalation of vinyl chloride was made on a variety of laboratory animals.

Concentrations of 10, 20, and 30 per cent vinyl chloride in air were used. Animals exposed to high concentrations of this chemical showed signs of irritation at first, with development of quick anesthesia, neurological disturbances, and respiratory distress.

At the concentration of 10 per cent, there were no deaths after 30 minutes of exposure; at 20 per cent, one mouse was dead; at 30 per cent, all mice and all rats used in the experiments were dead; one out of five guinea pigs died after 24 hours exposure to 30 per cent of vinyl chloride; two out of five guinea pigs exposed to 40 per cent concentration died as a result of the exposure.

W. E. Rinehard offered Studies on the Toxicity of Triethylborane (TEB). This chemical has been suggested for use as a fuel or fuel additive in the rocket, missile, and aircraft industries; and in non-military applications as a reducing agent, chemical intermediate, or polymerization catalyst.

The author found that in comparison with Decaborane that Triethylborane is the more toxic on the basis of the boron content. Inhalation studies indicated there was respiratory irritation while oral and intraperitoneal studies indicated a central nervous system effect.

Toxicity studies with Octafluoro-cyclobutane (OFCB) were reported by J. W. Clayton, Jr., M. A. Delaplane, and D. B. Hood. This chemical is suitable as a propellant for food products. The authors found OFCB has a low order of acute toxicity and does not possess anesthetic properties. The authors concluded Octafluorocyclobutane is safe as a food propellant.

There were numerous toxicological studies of various chemicals and compounds. Some of these are: The Toxicity of Epichlorohydrin, The Toxicity of Perchloryl Fluoride, Toxicological Studies on Hydrocarbons—The Metabolism of the Polyalkyl Derivatives of Benzene, and The Toxicity of Bromochloromethane.



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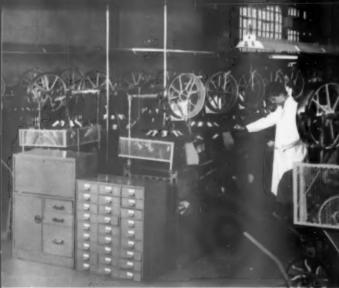
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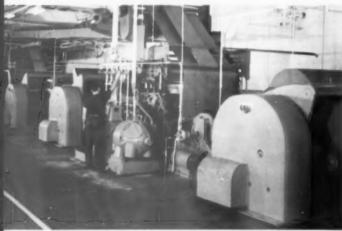
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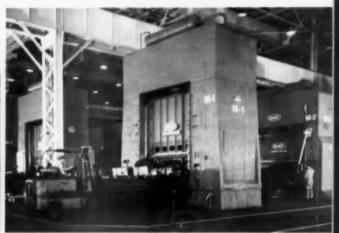
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Reviews of books, pamphlets and periodical articles of interest to safety men

By LOIS ZEARING, Librarian, NSC

Industrial Ventilation

Industrial Ventilation. By Committee on Industrial Ventilation, American Conference of Governmental Industrial Hygienists, PO Box 453, Lansing, Mich. Sixth edition, 1960. \$4, 244 pp.

THE FIRST EDITION of this manual on industrial ventilation was presented in 1951. With each succeeding edition the manual has been revised with new material to meet the continual need for an authoritative, up-to-date source of practical design information. It is ideal as a reference work for all who design, install, or maintain industrial exhaust systems.

This manual has been widely used as a design standard by ventilation engineers, designers, and contractors. It is especially valuable to the industrial hygienist or safety engineer responsible for evaluation of performance of exhaust systems.

The manual discusses extensively the general principles of ventilation, dilution ventilation, comfort ventilation, hood and duct design, make-up and recirculated air, construction specifications, testing of ventilation systems, fans, and air cleaning devices.

The sixth edition includes information for determination of effective temperature where radiant heat is present and a high and low temperature psychrometric chart for humid air. The section on testing of ventilation systems describes air measurement equipment and methods for checking the effectiveness of an exhaust system after its installation. An illustration in this section gives an example of an exhaust system with possible testing points for determining the proper functioning of the system.

There also is a review of the low volume-high velocity exhaust system concept which recently has found a unique application in specialized ventilation problems to control dust from hand tools and machining operations.

This publication contains 131 prints of design data and specific operations, 42 illustrations, and 26 tables. The ventilation or design engineer should be encouraged to obtain a copy of the sixth edition of *Industrial Ventilation*.

J. T. SIEDLECKI

Atmospheric Sampling And Analysis

ASTM Standards on Methods of Atmospheric Sampling and Analysis. By ASTM Committee D-22 on Methods of Atmospheric Sampling and Analysis. American Society for Testing Materials, 1960 Race St., Philadelphia 3, Pa. 1959. \$2.25; to ASTM members \$1.80, 104 pp.

WITH AIR POLLUTION PROBLEMS becoming increasingly acute, it is necessary to evaluate and standardize methods of sampling and analysis of pollutants in the atmosphere. ASTM Committee D-22 on Methods of Atmospheric Sampling and Analysis has developed the methods, definition, and recommended practices included in this book. These should be of interest to anyone concerned with the quantitative estimation of air pollutants in the atmosphere.

Chapters deal with definitions of terms relating to atmospheric sampling and analysis, recommended practices for planning the sampling of the atmosphere, recommended practices for sampling atmospheres for analysis of gases and vapors, methods of testing for inorganic fluoride in the atmosphere, nitrogen dioxide and nitric oxide content of the atmosphere, measurement of odor in the atmosphere (dilution method), odor in industrial water and industrial waste water, concen-

tration of odorous vapors (adsorption method), oxides of nitrogen in gaseous combustion products, oxidant (ozone) content of the atmosphere, particulate matter in the atmosphere (optical density of filtered deposit), and continuous analysis and automatic recording of sulfur dioxide content of the atmosphere.

J. T. SIEDLECKI

BOOKS AND PAMPHLETS

Aeronautics

Federal Aviation Agency, 1959. First Annual Report. 1960. 42pp. Superintendent of Documents, Washington 25, D. C. Price 30¢.

Electricity

The Effects of Electric Shock on Man. Charles F. Dalziel. U. S. Atomic Energy Commission, Office of Health and Safety, Safety and Fire Protection Branch, 1959. 19pp. Superintendent of Documents, Washington 25, D. C. Price 20¢. (Reprinted from "Ire Transactions on Medical Electronics" (PGME-5) May, 1956.)

Field Treatment in Electric Shock Cases—II. W. B. Kouwenhoven and others. 1960. 5pp. American Institute of Electrical Engineers, 33 West 39th St., New York 18. (Transaction paper—Winter 1960 meeting of the AIEE.)

Fire Protection

Ammonium Nitrate—Behavior in Fires. Chester I. Babcock. 1960. 15pp. National Fire Protection Association, 60 Batterymarch St., Boston 10. (Reprint from January 1960 NFPA Quarterly.) Price 25¢.

Inadequate Vents on Flammable Liquid Tanks. Miles E. Woodworth. National Fire Protection Association, 60 Batterymarch St., Boston 10. (Reprint from January 1960 NFPA Quarterly.) Price 25¢.

Oil and Grease Plant Fires. 1959. 4pp. National Fire Protection Association, 60 Batterymarch St., Boston 10. (Fire Loss Bulletin—Series 1959-3.) Price 35¢.

Gases

Proceedings, International Acetylene Association, 1957. 1960. 166pp. International Acetylene Association, 30 East 42nd St., New York 17.

Head Protection

Head, Eye, and Respiratory Protec-—To page 109



TO BE SAFE! A good part of C-20 Safety Frame protection lies in its smart looks

Workers will wear it, not tuck it in a pocket. Rich brown plastic top rims provide smart brow accent, with the same plastic continued in the temples, spatula or cable, for added style and comfort.

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easily attached to modify C-20 for additional protection.

Here are all the features you and your workers want in a safety frame: smart neat appearance, long-wearing comfort, superior fitting qualities, unequalled strength, outstanding protection. To see samples, call your B&L supplier, or write: Bausch & Lomb, 90306 Lomb Park, Rochester 2, New York.



Protection PLUS Safety Products

protection + economy + worker acceptance

U. S. Engineers

-From page 23

districts distance becomes almost meaningless. For example our Mediterranean Division is located in Leghorn, Italy. The division encompasses an area about one and a half times the size of the United States and extends 5,000 miles from east to west. Its projects are in nine different countries located in three continents. The three districts are located in Italy, Iran, and Pakistan.

The Pacific Ocean Division is located in Honolulu. Its three districts are located in Honolulu, Okinawa, and Korea. Organization and functions are the same as for the Mediterranean Division.

All overseas work from the Azores northward is assigned to the Eastern Ocean District of the North Atlantic Division located in New York.

All work in the Bermuda, Puerto Rico, and Panama areas is assigned to the Jacksonville, Florida, District of the South Atlantic Division.

Safety problems are inseparable from the problems of people. A study of the history and customs of a country is absolutely essential before setting up a safety program. For example, there are religions, tribes, and nationalities which just don't seem to mix. On one project we found out this was the reason men were "falling" from manhaul trucks, no matter how high the sides were built. After other mysterious mishaps the work force was divided up into proper groups and the incidents stopped.

In certain areas anything unattended is regarded as unwanted by the owner, so to take it is not considered theft. Certain religions have a 30-day period of fast when they abstain from food and drink during daylight hours. Here are a few of the principal safety problems we have encountered in overseas construc-

Construction Equipment. In much of the Middle East and Far East virtually all construction equipment must be imported. Many natives in these areas have never seen modern construction equipment and equipment requirements used in this country can be scaled down considerably. The brute strength of manpower is used much more extensively than it is in the U.S. with equality in production. For example, materials are carried up ramps by manpower instead of hoisted by cranes. Spoil from excavations is removed in small baskets by a steady stream of people. Concrete moves from mixer to forms in the same manner. Aggregate is broken into any desired size by a horde of workmen using hand hammers.

Competent native equipment operators can be trained. Most of them are fascinated by equipment and are keen observers. They know nothing about friction, momentum, centrifugal force, and other laws of motion. For example, they can see nothing wrong in making a 90° turn under full throttle, so their training included a comprehension of motion and its application to operation of the machine.

The fascination leads to attempts by untrained people to operate equipment. A laborer will watch the motions of operators and at the first opportunity climb aboard an unattended machine and take off. Many



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fatalities have resulted from this cause while the machine was being serviced or repaired. An operator stopped his tractor to grease the sheeps foot roller. A laborer spied the tractor, started the engine, and rolled over the operator. A workman inside a payer drum while chipping our concrete was lacerated when a curious person started the machine. We have long ago made it a cardinal rule to provide all equipment with locks and never leave the seat without taking the key.

At first, native laborers have little or no understanding of the crushing power of wheels and turning gears. Hence, there is no fear of working

on moving equipment.

Even though they have had instructions about the dangers of this practice, their eagerness to please overrides any caution they may have. About the only thing which makes an impression is a strict policy to remove violators from the job. The problem is compounded by the

loose, flowing garments worn. Machine guarding has to be as complete as possible.

It is a cardinal rule never to move a piece of equipment unless first having a thorough look under it. In the hot countries anything casting a shadow is a prize. Most people in these countries can curl up and go to sleep in an unbelievably small space. Many lives have been saved by this precaution.

Transportation. In many countries the vehicle population is small. Traffic. however, is dense with camel and donkey carts, cattle herds, bicycles, and pedestrians mixed in with the vehicles. Traffic is fairly well controlled in cities, but in the urban areas it is a difficult matter. Highways are narrow and surfaces are poor. More often than not, right of way belongs to the man who gets there first. People seem to believe that legal rights are established by blowing the horn, and high speed is

considered almost a requirement. Since neither motor vehicles nor speed are native to these countries. someone must have come in from outside and set bad examples. Vehicle maintenance is very spotty, and high speed plus poor road surfaces adds to the number of unsafe cars on the road.

We find good drivers can be developed by thorough training and rigid discipline. The most difficult problem is unlearning bad habits. For example, many roads are one lane wide with shoulders of deep sand on each side. No driver wants to go out on the sand, so vehicles which meet play the game of "chicken." Many drivers are totally lacking in courtesy, and at every intersection they play Russian Roulette with cars. In one area it was illegal to drive after dark with headlights on. The only light permitted was that in the dome. Reaction to incentives such as commendation certificates and oral praise was effective. After a short time the driver usually took pride in being a safe operator.

We have also learned not to transport workers unless the vehicles are enclosed. In many countries commercial bus service is infrequent and the vehicles are small. They haul animals and freight as well as people. The buses are always crowded with people perched on every square foot of the bus and sometimes hanging from windows by their fingers. Since that is the custom, they swarm over a manhaul vehicle the same way. In North Africa our contractor had to load trucks through turnstiles in order to control the number in each vehicle. Ignorance about motion also requires the enclosed vehicle. We have several workers, without hesitation. step from or run out of a vehicle moving 35 miles per hour or more.

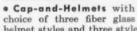
Physical Capabilities. In most Asiatic countries work is a family enterprise. Women and children work beside the men. Babies lie in the shade and toddlers play about the site. To an American it looks like chaos, but they have a definite method to their system. We have had very few accidents traceable to family activity.

Americans fall far behind most people overseas in skill in using hands and feet and in lifting. From projects in Asia and Africa we have



All Jackson Safety Caps-

The Life Guard Cap, the fiber glass cap and the Alumicap allow pivoting of arc welding helmets, goggles and face shields from factoryinstalled brackets:



helmet styles and three styles of glass holders. · Cap-and-Goggles with three types of goggles for gas

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• Face Shield F-1 fits the three types of Jackson hats. Two aluminum frame parts, pivoted together, hug the hat brim, are firmly held by elastic band. Same choice of visors as described above.





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Will you be in Harry's spot one day? Don't risk it! Install...



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no record of back strain or hernia. Hand and foot injuries are almost nonexistent when the worker is handling material alone. When working as a crew, it is sometimes a problem to get good coordination. The quick are a hazard to the slow. The excitable are a hazard to the stable. Constant supervision seems to be the only control.

Close attention is given to handling material with equipment, since many workers are not familiar with hazards of falling objects and being caught between objects.

Hard labor since early age has produced tough bodies among these people. This toughness prevails even when they are undernourished, and is a quality in both men and women. For example, in the Far East a workman fell 35 feet to the ground. He immediately bounded up, climbed the structure and went back to work. A woman sorting out unsatisfactory aggregate climbed down in the cone of the aggregate pile to adjust her garments. Someone dumped a load of rock on her. It took several hours to dig her out, but she was back to

work the next day with only a few scratches.

Personal Protective Equipment. In North American countries, Europe, and Japan personal protective equipment is available and used. In most countries it must be imported.

Head protection is about the most difficult to accomplish. Turbans and other head gear often signify caste, tribe, or station in life. Replacement of this native headgear with hard hats is next to impossible.

We have also learned that foot protection is provided on a selective basis. Many people have never worn shoes, and the bottoms of their feet are probably as tough as the soles of shoes. Footwear is usually of the sandal type. We have found that changing footwear to American standards sometimes produces more accidents than it prevented. In the West Indies we provided barefoot roofers with American shoes. We had to take them away to keep workmen from falling off roofs. In the Far East workers wear soft-soled sandals which fit between the big toe and the second toe. This enables them to stand on pole scaffolds by gripping with their feet like a bird. Barefoot workers walk behind a hot mix spreader in comfort.

We make no requirements for protective equipment until the operation has been studied and the impact on native habits determined. For example, in the Far East we found men and women working in fresh concrete barefoot. Welders used no eye protection whatever. In both operations there semed to be no ill effects. Here, however, we found that protective measures would contribute to more efficient

operations with no ill effects.

Job Layout and Access. Layout of operations is especially important to the safety program. One big objective is to segregate heavy equipment operations from the mass of people and animals swarming over the job. In many instances we have reduced equipment requirements by using elephants, camels, and bullocks to do heavy hauling. In the Middle East, for example, bricks are delivered to the jobsite by a steady stream of plodding camels. In parts of Asia elephants drag beams and timbers and move railroad cars.

A high state of cleanup is essential to an all-hand-labor force. The congestion must be kept within bounds. For example, it is common to see 175 people used in getting a 20 x 40 ft. roof slab poured. The only mechanical equipment is a mixer. Concrete is carried by hand in boxes or baskets from the mixer up a ramp to the forms. Forms are set by hand and the mixer charged with hand-carried boxes or baskets. Rubbish underfoot has the same effect as cutting down the number of workmen.

In countries where wood is scarce. adequate work platforms are a major problem. It is customary to stretch the use of wood to an absolute extreme. The main objective seems to be to use the least amount of wood without regard to effect the end product has on operations. On masonry walls one scheme is to run bamboo poles through wall openings and lay a platform of sorts on the poles on each side of the wall. The main reliance for stability is balanced loading, as props to the ground consist of a bamboo pole on -To page 64



FOOT-TOE-LEG

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(left) Style #202

Improved FOOT GUARD
with full RUBBER SOLE

FOOT GUARDS consist essentially of a metal shield to be worn over the shoe whenever the foot is in danger of being either crushed or cut. The metal shield is designed to furnish a maximum amount

of protection to the entire foot—not merely to the toes alone, but also to the instep—against hazards from falling, rolling or flying objects, or from accidental tool blows.

TOE GUARD →

fills a demand for toe protection in occupations where hazards injurious to toes exist. They fit any shoe, afford maximum toe protection, and like the foot guards do not eneage the toe to

the foot guards do not encase the toe to the discomfort of the worker. (Style #702 illustrated.)



SHIN GUARD (right) consists of a shin guard fastened to the foot guard in a manner permitting free action of the leg in any direction. Constructed of light but strong aircraft quality aluminum alloy. (Style #400 illustrated.)

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Are human costs of high productivity getting out of hand?



Safety is not static. Measured in statistics—or in human grief—our climbing accident trend proves that protection once deemed satisfactory is not adequate today. Studies focus on two steps to solve the problem:

- Identify manufacturing trends which increase exposure and create new hazards.
- 2. Develop sound methods for evaluating accident costs in relation to safety program costs.

Exploding technology creates new hazards

Cutting tool improvements are major causes. Use of throwaway carbide insert tools demands complete re-evaluation of safety equipment. Machine speeds are tripled (in many cases) to "burn up" cutting tools in favor of reduced total cost. Greater speeds of hot chips are new threats to safety.

Another trend is more "mixing" of operations in the shop. Flame cutting, for example, is gaining acceptance for forming parts from steel plate. There is more production-line grinding, right along with drilling, milling, and other conventional operations. Workers often are exposed to flying objects, sparks, hot-metal splashes, and dust—all in a single day.

Inadequate protection occurs when companies judge accident rates too low to justify costly changes. Proper protection, however, increases operator efficiency and productivity.

Of equal concern is the lag between expanding capacity and plant growth—with more machinery and people crowded into less floor space. There are too many untrained workers, too few skill requirements emphasized at a time when technology is exploding.



Changes in materials and founding also pose new problems.

Stronger, lightweight metals mean higher machining rates, plus greatly increased chip rate and velocity. Use of super alloys increases chip, tool, and dust hazards.

Investment casting techniques reduce wall thickness, weight, and materials cost...but they increase hazards from high machining forces.



The cost-of-routine-injuries approach

When facts about these new hazards are evaluated in terms of profit and loss, corrective action quickly follows—we've noticed the trend everywhere. This is why Willson has developed a new approach to the problem. A plant survey, which can be administered by any safety director, soundly proves to management that safety is a self-liquidating expenditure—not an addition to product cost.

Simplified job analysis work sheets, department summary sheets with starting inventories, and a correct cost analysis formula, help you easily summarize a complete program in terms which management can act on quickly. Specifically, the survey gives you:

- 1. Cost versus savings—complete factual analysis of how much eye injuries and accidents are costing your company . . . with potential savings.
- Safety recommendations—job-by-job evaluation of hazards in every department plus recommended eye protection.

Your Willson representative will help you complete a survey and set up a comprehensive eye-protection program. Here is a very practical plan that can prevent human costs of high productivity from getting out of hand in your plant.

New facts for management tell how to evaluate true costs of eye injuries accurately determine direct and indirect cost savings from eye protection. New 28-page booklet shows survey tools available for individual use. Write today for your free copy of "The Routine Eye Injury."

> Willson Products Division Ray-O-Vac Company

Reading, Pennsylvania Safety Supply Company of Canada



SAFETY is worth working for



THE ACCIDENT BAROMETER



Prepared by the Statistics Division National Safety Council

ACCIDENTAL DEATHS in February numbered about 6,800 or 100 more than in 1959. There was an increase in home accident fatalities, no change in work, and decreases in motor-vehicle and public non-motor-vehicle deaths.

The two-month death total was 14,500, an increase of 1 per cent over last year. Increases in motor-vehicle and home accident fatalities were nearly offset by a decrease in public non-motor-vehicle. Deaths from work accidents numbered about the same as in 1959.

Motor-Vehicle Deaths

There were 2,370 deaths from motor-vehicle accidents in February, or 2 per cent below a year ago.

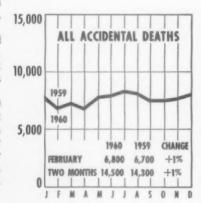
Deaths for the two months totalled 5,240, or 1 per cent above last year. Mileage data are not available at this time to calculate a rate on this basis.

For the two-month period, 30 states had fewer deaths than last year and 20 had more deaths. States with the greatest improvement for the first two months of the year were: Alaska, —67 per cent; Idaho, —47 per cent; and New Hampshire, —38 per cent.

Reporting cities with populations of more than 10,000 had a decrease of 1 per cent for February, but an increase of 1 per cent for the two-month period. Cities with more than 200,000 population having the largest reduction in deaths for the first two months of 1960 were: Grand Rapids, Mich.,—100 per cent; El Paso, Texas,—82 per cent; Birmingham, Ala., and Miami Beach, Fla., both down 75 per cent.

Work Accidents

Deaths from work accidents in February numbered about 1,000 no change from last year. The total



for two months was 2,100—also no change from 1959.

The February frequency rate per 1,000,000 man-hours in 18 sectional accident prevention contests conducted by the National Safety Council was 4.67, a reduction of 4 per cent from last year. The two-month rate was 4.44, a decrease of 8 per cent from 4.81 in 1959.

Public Deaths

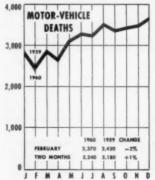
Public non-motor-vehicle deaths in February numbered about 1,000, or 100 fewer than a year ago.

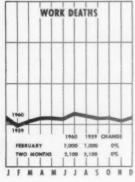
Deaths during the two months totalled 2,100, or 5 per cent less than in 1959. There was a sizeable reduction in deaths in other specified public accidents and a moderate decrease in falls. Small increases occurred in deaths from drownings, fires and burns, firearms, and transportation accidents. Increases were recorded for children 5 to 14 years old and young people 15 to 24 years of age. Other age groups showed decreases with the greatest improvement recorded for children under 5 years old.

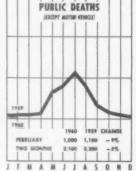
Home Deaths

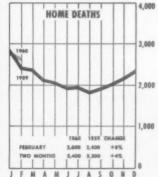
Deaths from home accidents totalled 2,600, or 200 more than in February a year ago.

The two-month death total was 5,400, an increase of 4 per cent over 1959. More deaths resulted from poisonings, falls, and firearms accidents; fewer from poison gases and mechanical suffocation; and about the same number from fires and burns. Aside from decreases in the 5 to 14 and 15 to 24 year age groups, each age group showed an increase in deaths over the previous year.









TOOL RACK safely and conveniently holds tools, preventing falling accidents. FOR THE SAFEST, MOST ECONOMICAL HIGHEST QUALITY, LONGEST-LASTING Ladders **Scaffolds** FILL ALL YOUR NEEDS FROM ONE SOURCE ... scaffolding and ladder equipment and engineering service through nation-wide sales offices or representatives. Look itent Scaffolding in the Yellow Pages for your nearest source.

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SAFETY PLATFORM STEP LADDER

This is the safest step ladder made. If the "Gold Medal" Safety Platform Step Ladder does not cut the number of accidents in your building from falls, dropping tools, etc., then no ladder will. All pivot points are metal to metal, which reinforces all connections and eliminates chafing of wood. The broad working platform permits men to work in any direction—safely—with both hands free. Heavy rung back construction permits use by helpers. Yet, it handles with the ease of an ordinary step ladder, and requires no additional storage space. Bears the inspected ladder label of the Underwriters' Laboratories, Inc., and conforms to all details of A.S.A. and State Ladder Codes. Sizes: 3' to 18', height to platform. Equipped with "Gold Medal" Safety Spreader with each step truss-rodded and knee-braced.

PS CO. OFFERS A WIDE VARIETY of "Gold Medal" step, extension and single ladders for every purpose, with top quality in every price range.

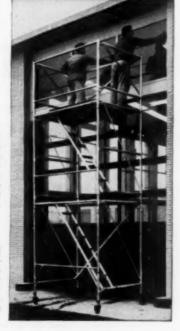


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Made in 20" and 30" widths, from 1 to 5 steps without handrails (shown); 2 to 12 steps with handrails. Easy-to-roll, self-locking casters. Flared bottom design gives maximum stability. Steel angle reinforces all steps. Write for Bulletin SL-1.

ALUMINUM Rolling SCAFFOLDS

Designed for easy handling and maximum strength. Base dimensions of Sectional Scaffolds are 4'6" by 6'. Ladder scaffolds can be 29" or 4'6" wide, 6' 8' or 10' long. Both styles are U.L. approved. Write for Catalog A.



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1550 Dayton Street, Chicago 22, Illinois West Coast: 6931 Stanford Ave., Los Angeles I, Calif. Branches in all Principal Cities each end. The props bow with movement so the scaffold system maintains a seesaw effect. If a workman or a pile of blocks falls off one side, the whole system unloads.

While agility and sure-footedness permit people to balance on these devices, much of their work capability is diverted to staying aboard. Work platforms built to American standards add efficiency to operations anywhere and create no offense against local customs and methods.

The passion to conserve wood usually results in ladders being 3 to 4 ft. shorter than they should be. In most cases they are worse than no ladders at all, so the wood is usually wasted.

Customs and Attitudes. In Arab countries it is customary for each worker to pray five times a day. During the prayer people prostrate themselves, and workers have been killed during prayer when run over by equipment because their clothing blended with the background and they presented no silhouette. The problem was controlled by designating safe areas for the ritual.

The coffee break seems to be universal. In the Middle East each workman carries everything needed to brew tea. The small lamp used to heat water has caused many fires. Usually the fires result from the lamp being used in almost direct contact with flammables. Some were caused by using gasoline as fuel. A roof was burned off a large building when during lunch hour a workman tapped into the tar kettle propane tank for fuel. Shelters in proper surroundings for making tea and eating reduced the problem.

We have long encountered a wide variety of attitudes about accident and injury. For example, in the Far East where the people are almost always solemn, there was a lot of hilarity when a fellow worker was injured. There is also a reluctance to rescue or give aid to someone in distress, since if one stops to give aid to an injured stranger who subsequently dies, he is expected to pay the burial expenses.

In countries of low economy people have virtually no interest in the welfare of their fellow men. In the struggle to eke out an existence there was not time to share someone else's troubles. Where workers in the act of praying were run over, there was often great elation among family and friends at his good fortune in being struck down while praying.

There was a wide breach between our meaning of truth and theirs. Truth consisted of what they thought we wanted to hear. They were especially reluctant to give facts about accidents. Coercion was often used to keep facts hidden. Apparently there was fear of harsh punishment if we found them involved in an accident.

Communication. This is the most difficult problem we have encountered. At the higher level, our architect-engineer may be French, the prime contractor German, and four or five subs, each of different nationality. At the working level, people come from many tribes or divisions of the country. All have their own dialects which are, in effect, different languages. Communication is accomplished through a cumbersome process of interpretation and to a limited extent through sign language.

Illiteracy on a large scale is frequently encountered. Here the usual means of safety education are worthless. Contractors have found a local hire safety engineer has been a big help, since he can both recognize problems and orally pass on instructions.

Translations of our safety requirements have been made in countries where the written word can be assimilated. In translations care must be taken, since in the process the meaning or intent can be lost. Quantities and measures must be converted to the metric system. Dollars have to be converted to local currency which often has frequent changes in exchange rate. The opportunities for error in translation and conversion are large. Translations carefully made have proven very effective.

Warning signs and posters are also developed in the three or four principal languages used. These also are effective.

Attitudes of Americans. After recovering from the shock of their first glance at the construction operations described in this paper, Americans usually apply themselves to the job with enthusiasm. Impa-



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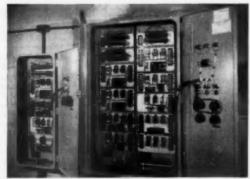
Gamewell Flexalarm System protects one of the world's largest malting plants.

This huge Rahr Malting Co. plant, pictured above, with its sister plant at Shakopee, Minnesota, supplies approximately 12 percent of the nation's malt. Its widespread facilities demand modern, maximum fire protection. Acutely aware of this need, company officials recently installed a Gamewell Flexalarm System.

All critical areas are protected by either manual coded pull boxes or a sprinkler system. In a matter of seconds, when an alarm is "pulled" or a sprinkler head goes off, the system automatically identifies the fire zone, sounds a general evacuation alarm and alerts the city fire department—all at the same time!

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This modern, compact control board is the "nerve center" of Gamewell's Flexalarm System, performing a constant automatic fire watch 24-hours a day.



tience is probably the most difficult American quality to overcome. Faster and easier ways of doing tasks are often rejected for no other reason than resistance to change. In some areas labor refused to push a wheelbarrow of dirt if there was more than a shovelful in it. In other areas Georgia Buggies for moving concrete were rejected. Patient and understanding leadership is slowly overcoming these prejudices.

American supervisors soon learn that crude methods frequently turn out creditable products. For example, in the Far East workmen with hand tools make door and window frames which equal those put out by U. S. cabinet shops. In the Middle East a blacksmith squats before his little fire contained by bricks. He hammers a die against a rod, and the identations become threads. Threads in the nut are formed as crudely. However the end product is a bolt which serves the purpose as well as a machined one. Items such as stovepipe and pails

are fashioned from sheet metal by an Arab sitting on the ground. He uses his hands in manipulating the crude shaping tools. The end product is as creditable and useful as one coming from a modern sheet metal shop.

Environment exerts a powerful safety influence on people. Contrary to what might be expected, Americans working overseas have an extremely fine safety record. The constantly improving accident experience for local hires reflects the patience and constructive attitude of American supervision.

Conclusion. Safety in any construction is a must, but in overseas construction it becomes even more important. Throughout this article "we" has been used to denote personnel of the Corps of Engineers, its construction contractors and architect-engineers. It must be acknowledged that American contractors and engineers doing nonmilitary work overseas also have extensive safety programs.

The results of safety programs are usually measured in terms of casualties. In these terms alone safety activities overseas are highly successful. An aspect, however, that is generally overlooked is the influence which these safety activities have on the country's political and social affairs. Virtually every country in which we have done work has sent some of her engineers to the United States to study our construction safety methods and procedures. Japan now has construction safety codes and methods that are about the same as ours. Korea and Taiwan are working in that direction. Morocco also has a code similar to ours.

The Safety Requirements of the Corps of Engineers have been translated into several languages and adopted as guides. The framework and need for world-wide safety activities has been documented for many vears by the International Labor Organization, but interest was dormant in many countries until we demonstrated what can be done. The U.S. Department of Labor and the International Cooperation Administration are actively following up. If present progress continues, all free countries should have some form of construction safety in 10 years. It has been bewildering and then



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enlightening for many foreigners to observe our concern for the welfare of every worker irrespective of his race, religion, or station in life.

The impression which our safety activities make on foreign governments is reflected in the following letter from the Labour Directorate of the Government of Eritrea, Imperial Ethiopian Government, to E. S. Tillotson, resident director for Crow-Steers-Shepherd:

DEAR SIR:

I wish, once more, to express my gratitude to you and Col. Edward H. Bieleski for the opportunity given me to study the organization of the Crow-Steers-Shepherd Company and the measure which it takes to preserve the health and safety of its workers. I am very pleased to say that, though my visit was short I was able to learn many things concerning the protection of workers by the splendid explanation given me by Col. Bieleski, Mr. Gray and other officials of C. S. S.

As I said on the day of my visit, the Crow-Steers-Shepherd workers are paid better than any other workers in this territory, but more than that it is important the training they are receiving from their American supervisors, and I hope that at the termination of the C. S. S. work every trained person in a technical ground will receive a certificate from you so that he could be considered as qualified man and could be easy to find job elsewhere.

I have noted with interest the evening lesson given by Mr. Wright at his residence on the proper use of tools and how to avoid accidents while working. I must thank Mr. Wright for devoting himself to give such interesting lessons which go to enter benefit of the workers, and I hope they will take much opportunity of these lessons if they are really willing to improve the standard of their work.

Finally, I wish to thank you very much for your courteous entertainment and for the cooperation and understanding I received from you and from the U. S. A. Army authorities and also from C. S. S. officials.

Yours sincerely, ASFAHA CAHASI Director of Labour

Contractors and engineers promoting safety activities overseas can be proud of their contribution toward a better world.

Wire from Washington

-From page 21

ences-National Research Council issued a report summarizing the findings of six scientific committees on radiation hazards. It repeats an earlier recommendation that the average dosage for the general population should not exceed 10 roentgens in the first 30 years of life.

Among other conclusions, it reports that "to date, waste operations [of nuclear activity] have not resulted in any significant effect on the public, its environment, or its natural resources." However, the report recommends "energetic monitoring" for the future.

The U. S. Department of Labor initiated a new series of bulletins on organization and administration under the general title Safety in Industry. The first such bulletin, No. 211, deals with Control of Environment and suggests control measures to eliminate or diminish hazards.

The Deputy Undersecretary of Labor said that, while the number of man-days of idleness from all work stoppages during the 13 years since 1947 totalled 462 million—or 1/3 of 1 per cent of all working time during this period, on-the-job accidents for the same period caused 2.5 billion man-days of lost working time. This was "5½ times as much as that resulting from all strikes and lockouts and 32 times as much as from all national emergency disputes."

Commercial Transportation. Top level federal officials are working on the total transportation problem. The Secretary of Labor called for "a fundamental overhauling of the Interstate Commerce Commission and the laws that govern transportation." He saw the need for "an over-all approach on the part of the federal government." The Undersecretary of Commerce for Transportation, in pursuance of views expressed in the report of the Secretary of Commerce on transportation policy (See "Wire," May 1960), said:

"The regulatory commissions must be relieved of their detailed chores . . . In our transportation report we recommended a steady





time-phased elimination of detailed control by regulatory bodies over . . . the conduct of carrier businesses."

The ICC, in a motor carrier accident investigation report, promised continued activity to prevent the improper use by drivers of sleep-preventive drugs, and a "vigorous administrative and enforcement program" to obtain compliance with its safety regulations by all carriers subject to them, including non-certificated carriers.

Aviation Safety. The Federal Aviation Agency announced a new Technical Standard Order which establishes minimum performance standards for wheels and brakes used on civilian aircraft. The proposal incorporates recent industry standards which will apply to the manufacture of new wheel and brake models.

Considerable controversy has surrounded safety prescriptions established by FAA for certain plane types involved in recent air accidents. Some members of Congress as well as the Civil Aeronautics Board have called for complete grounding of specified types. FAA has taken less drastic action by reducing allowed speeds pending further investigation.

Marine Safety. The U. S. Supreme Court ruled, by a 7-2 vote, that federal licensing and inspection of steamships for operation in interstate commerce did not give their operators immunity from prosecution under Detroit's smoke-abatement ordinance.

The Court saw no conflict: The federal legislation was designed "to insure the sea-going safety of vessels subject to inspection," while the air-pollution ordinance was designed "to protect the health and enhance the cleanliness of the local community" and was an incident of local police power not constituting a direct regulation of interstate commerce.

The Secretary of Labor issued various regulations under the Longshoremen's and Harbor Workers' Compensation Act:

1) To require keeping of certain records and making of reports concerning work injury frequency and

severity.

2) To establish the procedure for exercising his administrative discretion in granting certain types of variations from health and safety regulations.

Such variations will be available only where the director of the Bureau of Labor Standards determines that the general regulation imposes practical difficulty or unnecessary hardship in a particular application and that the purpose of the general regulation and the safety of employees will be secured by other devices.

The Intergovernmental Maritime Consultative Organization, a U. N agency, called a conference to revise the 1948 International Convention on Safety of Life at Sea. The convention prescribes standards for design of vessels and life-saving procedures.

Public Safety. The House Committee on Interstate and Foreign Commerce heard a panel of scientific experts selected by the National Academy of Sciences on color additives amendments to the Food and Drug Act, (H.R. 7624 and S. 2917).

The principal question at issue was the so-called Delaney amendment of the Food Additives bill of 1958 (See "Wire," September 1958) which declares a color to be unsafe if, after certain kinds of tests, "it is found . . . to induce cancer in man or animal."

This provision appears in H.R. 7624, but not in the Senate-approved bill, S. 2917.

The general view of the non-governmental scientists was against the absolute bar of the Delaney amendment and in favor of granting discretion to the Secretary of HEW not only to determine the extent of the hazard but also to allow dosage controls and tolerances.

The Secretary of HEW urged Congress to enact the Delaney anticancer provision in the color additives amendment and to make illegal the use of any color that will induce cancer when tested.

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Peaceful Atom

-From page 25

moting the safe use of isotopes.

Very obviously, we have a great deal to gain in continuing the perfect safety record, and we would lose a very great deal commercially, as well as morally, if any of our customers were to be injured in the use of our equipment. All that we ask is that safety regulations be made in a rational way, expeditiously, and according to standards which are published for all to see.

Safety regulations are, of course, not static things. New inventions are being introduced and new situations are arising which require administrative action. Whether or not the responsibility for safety regulation remains in the hands of those who are presently concerned, administrative decisions must be made promptly. Administrators must not allow themselves to become so gun-shy because of public criticism or political maneuvering that they stifle progress through overzealous regulations for

regulations' sake or by the whim of an office-bound functionary who has never seen the inside of a plant.

In interpreting the safety requirements of industrial radiation devices. the appropriate regulatory authorities need not start from scratch. There is available a tremendous body of knowledge in safety engineering, and industry has learned how to handle dangers far more hazardous to life and health than radioactivity. In fact, the dangers of radioactivity are no different, either in magnitude or in kind, from many which industry has learned to control. It is not valid to claim that the hazards of stray radiation are unique because a person can be damaged without knowing it and without the damage becoming immediately apparent. There are many industrial hazards which exhibit precisely the same effects.

Several common industrial gases have properties similar to carbon monoxide; they are undetectable, yet deadly. Many low-grade hazards are cumulative and can become

acute with long exposure. Examples like carbon tetrachloride vapors and industrial dusts of many types come to mind. Probably the most insidious industrial hazards are the metallic poisons such as lead, cadmium, and beryllium, common around plating baths and various chemical operations. These are even worse than radioactivity, because there are no simple detectors, such as Geiger counters or film badges, to signal their presence, or even to indicate exposure after it has occurred. Industry has learned to handle this sort of hazard, and individuals in regulatory positions must not ignore the lessons which have been learned.

To establish reasonable standards of safety, it is necessary to evaluate the magnitude of the dangers. It is well accepted that there are two basic types of hazards present in the use of radioactivity-those which would result from ingestion of radioactive material and those which involve exposure to radiation which emanates from the material. In the design and construction of devices utilizing sealed isotope sources, hazards of the former type can be for all practical purposes eliminated. It is hazards of the latter type which require careful consideration in regulation and applica-

Existing regulations as well as recommendations of certain wellqualified advisory groups establish areas where field strengths of 100 mr/hr exist as "high radiation" areas, to be avoided whenever possible. This is a conservative standard and one which industry will accept without question. It is instructive, however, to evaluate the damage which could occur if all warning and safety precautions fail and a person is exposed to this amount of radiation for an extended period of time.

The inescapable conclusion is that, even if by accident a worker were to spend an entire eight-hour working day in the "high radiation" field of 100 mr/hr, he would receive no more radiation than that routinely used in gastro-intestinal X-ray examinations. Hence, while the 100 mr/hr field is hazardous, the hazard is rather low-grade; perhaps comparable to the inhalation danger area around a paint spray booth.

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Go-Jo Creme Hand Cleaner contains GT-7, a powerful antiseptic, to help prevent industrial dermatitis, which is often caused by an accumulation of harmful bacteria. A report by an independent microbiological testing laboratory (name on re-

quest) spells out the facts: In tests performed under everyday working conditions, on subjects representing a wide range of occupations, Go-Jo Creme Hand Cleaner reduced the bacterial count on their hands by over 99%.

Heavy-duty "One-Shot" Dispenser by Go-Jo eliminates mess and waste and cuts hand-cleaning costs 75%. One pull of the handle delivers just the right amount for a quick, thorough clean-up.



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different standards of protection for various degrees of hazards. For example, consider the voltages on power lines. A 33,000-volt power line is almost invariably lethal to the touch. Hence, elaborate protection is applied in the form of chain link fences with barbed wire tops, locks, gates, and prominent warning signs (but not safety interlocks which automatically shut off the power or sound alarms if someone approaches).

As opposed to this, a 440-volt line would likely not be deadly to touch, although a bad jolt and perhaps a burn would result. Hence a different standard of protection is applied to 440-volt lines. They are commonly run in conduit or sheet metal ducts which are clearly identified as containing "hot" leads, and master switches and circuit breakers are prominently displayed. Common safety practice is to forbid any person other than an experienced electrician working on these circuits.

Finally, at the distribution level of 115 volts, only elementary safety precautions are taken. Convenience

outlets are placed about for everyone to use. Appliance cords are allowed to lie unprotected on the floor. Common safety practice allows, except in wet locations, practically unrestricted use of appliances with only visual inspection of the integrity of insulation and operating condition of the appliance. These standards are accepted because it is unlikely that a person will be seriously injured by the 115-volt electricity. However, such occurrence is not impossible; in fact, many people are killed every year by 115-volt power.

A vitally important point can be derived from the preceding discussion. That is that a slight risk is acceptable in the use of electricity. Reducing the risk below its present level would have high economic cost. Also and more important, reducing the risks from electricity would likely force the acceptance of substitutes which are more hazardous than the electricity.

For example, it would be entirely possible to operate a modern plant without any electric power distribution at all. All power could be taken, as it was in early-day machine shops, from belts driven by overhead line shafts. This would reduce the level of hazard from electric shock to zero, but it would be a self-defeating safety measure, since belts and overhead rotating machinery would be a greater hazard than the electricity.

Alternatively, pneumatic tools could be used, but high-pressure air lines and hoses are no less hazardous than electric drop cords. The clear conclusion is that there is some irreducible minimum to the risks which everyday living imposes. An attempt to reduce one type of risk may increase the over-all risk.

Now in regard to the standards applied to industrial uses of devices utilizing sealed radioactive sources, as has been stated, there has not been one single recorded case of injury to any person in Ohio caused by the radioactive source. What is not recorded is that number of persons injured or killed performing functions which might have been made automatic through the use of radioactive devices. While it is impossible to estimate how many cases of the latter type have occurred, it is certainly safe to state that the number is not zero. Over-zealous interpretation of safety regulations must not be allowed to prevent applications of radioisotopes which are safe within any reasonable interpretation of the word.

The critical interpretation which must be made is the meaning of the regulation in which it states that an installation must be made in such a way as to insure that no man will receive more than .5 rem in one year "under normal circumstances of use." If operating decisions are made which tend to make "normal conditions" into something like "any conceivable conditions," then the progress of the entire industry will be set back irrevocably.

Stated another way, regulating authorities must not impose safety precautions so stringent that it is necessary to protect a worker against his own gross negligence. As stated before, the radiation levels under consideration are not so great as to require that degree of protection, since a worker can be grossly negligent for periods of time up to one whole day and still sustain no damage greater than in a routine trip to his doctor's office.





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Safety precautions appropriate to a 33,000-volt power line are not appropriate to a 115-volt line; likewise, precautions appropriate to an atomic reactor are singularly inappropriate to a device utilizing a few millicuries of by-product material.

As a specific example of the harm that may result if a regulatory decision is made in disregard of the practicalities of the situation, consider the case of level measuring equipment for tanks and bins. It would appear possible that a decision may be rendered which would require a safety interlock on the access to any tank wherein a radiation level of 100 mr/hr or more exists; said interlock to cause the radiation source shutter to close automatically or an alarm to ring if any person should enter the tank.

Now a typical industrial application of level equipment might be on a tank 10 ft in diameter and 10 ft high. It might be desired to operate a pump to keep the tank automatically filled with water. Hence a 50 millicurie source of Cs 137 would be mounted on one side of the tank and a detector on the other. If the level of water within the tank should drop below the line between source and detector, sufficient gamma radiation would penetrate the walls and across the open area to cause the detector automatically to turn on the pump until the water level again reaches a point high enough to block the radiation.

In such an application, a field slightly in excess of 100 mr/hr will exist inside the tank within a few inches of the point on the inside wall where the gamma rays enter. Typical tanks of this sort are open at the top and, of course, no one will enter the tank under normal conditions; he would drown if he did. Every three months, however, it may be standard practice to drain the tank and for a workman to paint the inside. It would appear perfectly obvious that the reasonable safety precautions in such an application would be to equip the Cs 137 source with a shutter which could be manually closed and locked, and to

place one or more signs prominently around the rim of the tank warning all persons to close the shutter before entering the tank.

Although there is always the possibility that a negligent person may ignore warnings, the danger is no greater than that of the same individual's ignoring the warning signs on 440-volt bus ducts. The result of his negligence is a different matter, however. In the case of the tank it is most unlikely that he could be seriously damaged even through his gross negligence, but it is very likely that he would be injured, perhaps fatally, by the power line.

It would not be reasonable to equip the tank with a safety interlock to close the shutter automatically if one forgot to shut it manually before climbing into the tank. It would be uneconomical; it would violate good principles of safety engineering; it would be unnecessary; and, in the case of an open top tank, it would be impossible. Hence a ruling which would require such a thing would have only one result: the radioactive device would not be used.

A mechanical device, probably a float similar to that on a toilet bowl, would be substituted. However, such a device is subject to failure due to corrosion and fouling; hence it would frequently be necessary for a maintenance worker to climb a ladder to the top of the tank to repair the device. Now climbing a ladder is not a great hazard, but it is certainly more hazardous than standing on the ground. The net result of such a ruling would, then, be a less desirable, less economical situation without the concurrent advantage of improved safety conditions; in fact, the opposite would be the case.

In summary, it is conceivable that an individual in a position of regulatory responsibility could in good faith make a disastrous decision simply through unawareness of conditions which are standard in industrial practice. Such people must prevent this from happening; they must keep the various factors in proper perspective! It will benefit no one if, through overzealous regulation, industry is deprived of the widest possible use of these wonderful new tools.



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Edmont Edmont

Noise

-From page 27

The behavioral effects of noise are as complex and ill-defined as the noise itself. If noise is defined as "unwanted sound," who is to define what is "unwanted?" Thus the complexity of the study of the behavioral effects of noise exposure is inherent in the nature of the noise itself.

The effects of noise on performance, efficiency, mental effort, and stress, are all difficult to quantify or even qualify for that matter. The literature is full of reports that record conclusions in either direction. No valid studies lead to any conclusion except that, in general, noise has no direct bearing on behavioral responses if the exposure has continued long enough to produce adaptation. This conclusion is probably valid where exposures are less than 130 db. We have no conclusive information about the effects above this level.

Recently stress has become a medical entity of considerable importance. Whether continued exposure to high-level noise (above 110)

is a factor in stress production is unknown. It has been shown by animal experiment that exposure to intense noise produces enlargement of certain organs. It is quite certain, however, that the enlargement is the response to immediate stress. Adaptation quickly follows and the enlargement is not pathological. There is no doubt that intense noise exposure will increase pulse and respiration rates and produce an elevation in blood pressure but if the organism is exposed long enough, adaptation occurs and normal values are assumed.

There is much uncertainty in past literature regarding the nonauditory effects of noise, particularly those related to behavioral changes. This pattern is not unusual. Much fear and emotional reaction accompanied the appearance of radio waves, radiation hazards, smog, and ultrasonics.

Much work is needed to dispel the misgivings of ignorance. In spite of ignorance of the quantitative nature of the nonauditory effects of noise, enough is known to conclude that the nonauditory effects of noise encountered under industrial conditions do not produce a health problem. Many employees work under noisy conditions for many years and show no general health changes causally related to noise exposure.

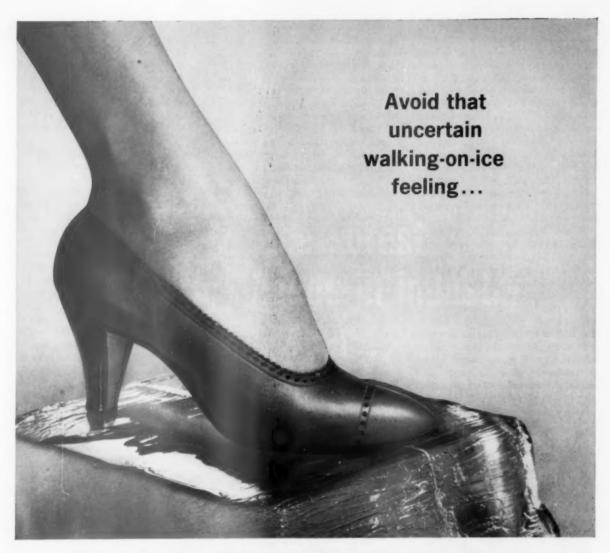
The auditory effects of noise exposure are much better known. They can be divided into two classes: temporary and permanent. Temporary hearing loss, or more accurately, temporary threshold shift, is defined as the auditory shift that is produced by the noise exposure sustained during one work day and that recovers before the beginning of the next work day. Nearly all employees who work in noise levels that exceed 85 db in the middle frequencies (600-4800 cps) are aware of a slight change in hearing at the end of the day; how much shift and in what audible frequencies depends on many factors.

The study of temporary threshold shift has proved important because of its relation to permanent threshold shift; for example, we believe that if a noise exposure does not produce a temporary shift in threshold, it will not produce a permanent threshold shift. Our studies so far seem to support this belief. Such a hypothesis when proved will provide a valid method for preparing prediction formulae for permanent loss. It will enable us to prepare a family of prediction curves which will predetermine the expected hearing loss risk as a function of noise exposure. We will be able to set realistic standards for hearing conservation.

By studying temporary threshold shift, we can determine in a relatively short time (5-10 years) some of the relations continuous exposures, intermittent exposures, fluctuating exposures, variations in spectra and level and total duration have to hearing loss. If the answers to these questions depended strictly on longitudinal studies of permanent changes, we would be many years learning enough to even think of standards for noise environments. The study of permanent hearing loss and its relationship to noise exposure is so complex, it will be many years before enough data are available to show these relations with complete certainty.

The fact that noise exposure produces a hearing loss is well sub-





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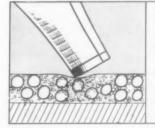


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stantiated. We do not, however, know what circumstance will produce how much hearing loss in how many people. Occupational noiseinduced hearing loss has been recognized for over a century but its sudden acceptance as a compensable occupational disease produced both consternation and apprehension in industry in general. Ignorance of known facts about the relations of hearing loss to noise exposure led to hurried and questionable decisions about damage risk criteria, particularly with respect to disability laws and to rating scales.

The possibility of a flood of claims, and the lack of reserve funds to meet the claims, made management afraid in many instances to admit that a noise problem existed. There are still many individual companies that will not organize hearing conservation programs because of the fear of initiating claims for compensation. Repeated experience has shown that if management adopts a common sense approach and makes a reasonable effort to protect the health of employees, the latter

respond favorably in most instances. It is a demonstrable fact that companies with active hearing conservation programs face fewer claims for compensation than do the companies that have made no effort to abate noise or to follow the status of hearing of their employees.

The complexity of the noise problem is readily seen when the medicolegal aspects are considered. In a discussion of the medical principles underlying the evaluation of noiseinduced hearing loss, we would use the term "disability" in its usual medical sense of "loss of normal function." It appears, however, that the word has acquired a legal meaning which is considerably narrower than and quite different from its usual medical meaning. In the interest of preventing confusion we propose to use the term "impairment" which now has no legal connotation, in place of the more ambiguous term "disability."

What constitutes "impairment" caused by hearing loss? The function of hearing is used by man for many purposes, but the one most

important to the large majority is undoubtedly the hearing and understanding of speech. If hearing for speech is the most important common use of the auditory function, then it is logical to assume that loss of hearing for speech should be the basis of determining impairment.

The original purpose of compensating for "disability" was to replace reduced earning capacity which resulted from occupationally-induced impairment. Obviously the common denominator of hearing is communication by speech, not whether one can hear the top note on the piano. Is it not fair, then, to assume that impairment rating should be based on the effect of loss of hearing on hearing and understanding speech? The medical profession thinks so, and has proposed a method of rating impairment on this basis.*

At present the only standard method of testing hearing is the procedure that uses pure tones to obtain the threshold of acuity at discrete frequencies in the audible spectrum. Pure tone tests are performed with a pure-tone audiometer. For the present we must be content with determining "impairment" by conversion from pure-tone tests. Admittedly this is not ideal, but until standard speech tests are available, a conversion formula as used by the medical profession will produce fairly accurate estimates of ability to hear and understand speech.

We are frequently asked what effect hearing loss has on an employee's ability to perform on the job. First, consider jobs in noisy environments. If the environment is continuously noisy, and if the overall sound pressure levels exceed 90-100 db, the presence of almost any amount of hearing loss has little effect on job operations. When noise levels are this high, it is quite impractical to make use of the function of hearing except for signals that exceed environmental noise levels by at least 10 db. But communication by human voice is almost impossible under such circumstance.

If a job environment is not noisy, at least not continuously noisy, the need for hearing on the job depends



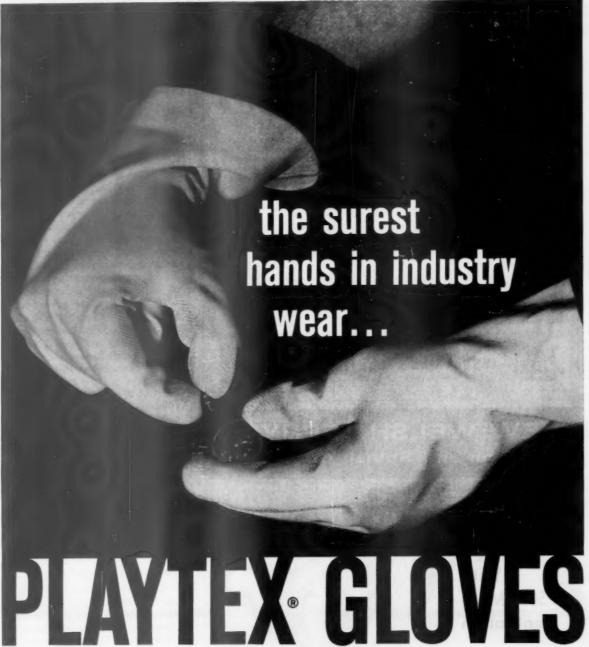


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e"A Guide to Evaluation of Hearing Impairment," Transactions of the American Academy of Ophthalmology and Otolaryngology, March-April, 1959.



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CLIP



News of Interest in the Field of Noise Control

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W E L S H – Willingly Worn By Workers Everywhere on the need for communication by speech. If intercommunications between persons is necessary, hearing losses in excess of 30 db at 1000 cps may produce enough impairment to affect the job result. Under ordinary conversational conditions the human voice produces output sound levels of about 55 to 60 db, and persons with as much hearing loss as 30-40 db at 1000 cps may be able to communicate satisfactorily under some circumstances.

We are often asked if a person who already has a hearing loss is more susceptible to noise-induced hearing loss. I believe we can say "no" with very little reservation. I do not believe that the amount and type of hearing loss found in most industrial employees should deter management from placing these men in the usual noisy environments.

Hearing loss in the general population and in industrial populations is well shown from studies of samples of these two general groups. Figures 1 and 2 show the distribution of hearing loss in the general population in industries with noise levels of 84 db in the middle bands (600-4800 cps) and in industries with 94 db in the same bands. The figures indicate the percentage of people with various amounts of hearing loss at specific frequencies according to age. Notice that the first two groups are approximately the same except for larger hearing losses in the older groups in the high frequencies. Notice, however, that when the level is increased to 94 db in the middle bands, the number of people with large hearing losses increases rapidly.

A survey conducted by Karplus and Bonvallet reported in the American Industrial Hygiene Association Quarterly, Volume 14, December 1953, shows that 50 per cent of machines used in American industry produce between 90 and 100 db of noise, and 50 per cent of all areas measured showed noise levels between 85 and 95. It can be seen that no plant is without a noise problem of one magnitude or another. Potentially, industrial noise can become a rather large mountain.

The over-all effects of noise exposure on hearing depend upon several closely related factors: (1) the amount of energy in the noise (2) the distribution of energy as a

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function of frequency (3) the time distribution of the exposure during a work day (4) the total duration of the noise exposure.

We know the higher frequencies are potentially more harmful than the lower frequencies. We know that intermittent noise is less effective than continuous noise. We know that noise-induced loss results from vears of exposure. It is rare indeed to find severe loss from exposures of less than 5-10 years. We know that most of the hearing loss occurs in the frequencies above 2000 cps and that most employees are not aware of noise-induced hearing loss until it affects the speech range (500 through 2000 cps). Although there are many causes of hearing loss other than noise exposure, differential diagnosis depends strictly on the history and medical examination at the time each case is seen.

We know also that noise-induced loss is permanent. Medical treatment will not help. Prevention is the only therapy. None of the diseases of the ear can be considered general enough to produce an effect on the population that should be corrected for. Hearing loss resulting from aging (presbycusis) is the only process that affects the majority of people in more or less the same way.

However, corrections applied to audiograms for the expected loss due to age cannot be proposed as yet, because the interrelations between the aging process and the noise-induced hearing loss process are not adequately understood. We are quite certain that aging does not produce significant hearing loss in the average person.

Actually, there is no need for noise to assume mountainous proportions. With a factual approach to the evaluation of hearing impairment and the compensation aspect of the problem, hearing conservation programs, and a real interest in cooperation between employer and employee, the noise problem can be kept within reason.

Evaluation of impairment is strictly a medical function. The medical profession has proposed an acceptable method of assigning percentage hearing impairment. The compensibility of hearing impairment is a community decision. As physicians we have proposed what we feel is

a fair approach to evaluation of impairment. We do not feel it is our place to decide what hearing impairment is worth in dollars and cents. However, we do believe that with cooperation between management, labor, and the medical profession, legislation that is fair and equitable can result. A good example of the result of such cooperation is the Wisconsin law governing occupational hearing loss.

The potential cost of compensation for hearing loss can be approximated by extrapolation from population samples available in our Research Center. From these studies we have determined that there are approximately 1,700,000 males between 50-59 years of age who have hearing loss greater than 15 db in the speech frequencies. Assuming that 10 per cent of these are eligible to file for compensation and that the average settlement would be \$1000 per claim as calculated by the Wisconsin formula, we find a potential cost of \$170 million.

Our analyses indicate there are approximately $4\frac{1}{2}$ million men with losses greater than 15 db in the speech frequencies. Assuming 10 per cent of these men will file for compensation on the basis of the Wisconsin formula, and that the average claim amounts to \$1,000, the cost would be \$450 million.

How can we prevent noise-induced hearing loss? The answer is clear-cut: Initiate a hearing conservation program. Briefly, this means:

1. Noise exposure analyses. Survey your plant. Wherever noise at 600-1200, 1200-2400 or 2400-4800 cps exceeds 85 db, there is potential risk to hearing.

2. Reduce noise levels at source, if possible.

3. If not, provide personal protection in the form of ear plugs, ear muffs.

4. Consider use of enclosures or changes in operational procedures.

5. Have pre-employment tests for all employees. Those who work in high noise levels should have recheck tests every 12 to 18 months.

In my opinion, hearing conservation programs based on these principles will in a reasonable time reduce the potential mountain to a negligible molehill.*

New Kidde carbon dioxide portables awarded highest U.L. rating!



Belleville, N. J. — A spokesman for Walter Kidde & Company announced here today that four of the company's new portable fire extinguishers have been awarded the Underwriters' Laboratories highest ratings for their respective capacities. To those interested in fire safety, this means that, pound for pound, these new Kidde units have more fire-killing power than any other carbon dioxide extinguishers on the market today.

Available in 15 and 20 pound capacities, in either squeeze valve or trigger models, these power-packed Kidde units feature new hose and discharge horn assemblies, which are responsible for their extra fire fighting ability. The new assembly is supplied also with Kidde's 10 pound carbon dioxide portable which has a U. L. rating not exceeded by any other extinguisher of its capacity. This hose-horn combination is also being offered as a replacement unit for existing 10, 15 and 20 pound carbon dioxide units, and when attached will upgrade their effectiveness equal to the new ratings.

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^{*} Guide to Conservation of Hearing in Noise, Research Center, Subcommittee on Noise, 327 S. Alvarado St., Los Angeles 57.

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An artist's conception of the astronaut's capsule in orbit



Black lines represent expected orbits of the astronaut's capsule.

Project Mercury ground stations will be close to the orbital path

is helping to create the
world-wide communications
and tracking network for
America's first man into space

Another epoch-making space communications assignment was recently given to the Bell System.

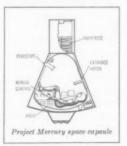
Because of our experience in this field, we have been asked to set up a communication, telemetry and tracking network which will girdle the globe and maintain contact for Project Mercury—America's effort to put a man into orbit.

Western Electric, the Bell System's manufacturing and supply unit, heads an industrial team which will design and build this network for the National Aeronautics and Space Administration.

In all, 18 stations around the world are being constructed for the network, using existing radar and communication facilities where possible. The network's mission: to track and monitor the flight of the space capsule, transmit signals to its operating instruments, and provide a dependable voice channel between the astronaut and his colleagues on earth.

Creating communications systems for the space era which are as reliable as man

can make them is familiar work for the Bell System. It's a natural development of the telephone system which serves you so well today, and will serve you still better in the future.



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National Safety News, June, 1960



THE
CHALLENGE
TO
TO
MANAGEMENT
OF
OFF-THE-JOB
ACCIDENTS



WHY

BE CONCERNED ABOUT NON-WORK ACCIDENTS



If the story about Joe and his boss simplifies the off-the-job accident problem, it does so intentionally. Basically, the problem is a simple one—but it is also a big one. Industry has been working on it to some extent for years, but deaths and injuries continue to occur to employees off the job at a spectacular rate. Nearly as many lives are lost each year in accidents in the home alone— which, above all, should be a refuge from danger—as were lost in battle during the three years of the Korean War. And more than 20 per cent of these home accident victims are industrial employees.

In a recent year, estimates of national off-the-job totals ran like this: 29,000 killed; 2,300,000 suffering disabling injuries; another 5,000,000 incurring nondisabling injuries. Man-days lost came to 5,500,000. The total economic loss was \$3½ billion, and the dollar loss to employers was \$550,000,000. Those are impressive figures.

Of the 29,200 killed, 17,000 lost their lives in traffic accidents; 6,400 suffered fatal public accidents; and the remaining 5,800 met death through accidents in their own homes. Of the disabling injuries, 600,000 resulted from traffic accidents; 800,000 from public accidents; and 900,000 from home accidents.

The estimates showed further that deaths per 100,-000 workers were occurring at the rate of 49 off the job to 22 on the job, a ratio of 2 to 1; and that disabling injuries per 1,000 workers were occurring at the rate of about 40 off the job to 30 on the job, a ratio of 4 to 3.

Figures compiled by various companies tell an ever more dramatic story. In some cases, disabling injuries occur 20 to 40 times as often off the job as on the job. Even while a company is building an outstanding record with *no* disabling injuries incurred at work over a long period of time, its employees go right on suffering disabling injuries off the job.

In a recent year, 171 companies which carry on active off-the-job safety programs reported to the National Safety Council on the Quarterly Summary—Off-the-Job Injuries report form. The 1,104,155 employees of these companies lost a total of 651,705 man-days and suffered a total of 194 fatalities during

the year. The average frequency rate was 8.6 injuries per million employee hours off the job (computed at 72 hours per week) and the average severity rate 158. Both rates are considerably lower than the rates of companies which do not have off-the-job safety programs.

Because accidents to members of his family have a direct effect on the employee's efficiency and peace of mind, no consideration of the national problem, however brief, should fail to point out that accidents are the chief killers and cripplers of children. Parental apathy, failure to set a good example, lack of knowledge of accident causes and preventive measures, failure to remove hazards and to train children add up to the dreadful totals of nearly 1,700,000 disabling injuries and some 15,000 deaths to children under 15 years of age every year.

HOW PEOPLE DIE OFF THE JOB

Knowledge of the ways in which people die in off-the-job accidents can contribute to understanding of the total problem and can guide a company analyzing its own environment for potential accident causes.

Most of the traffic accidents, which account for the largest number of deaths, occur when motor vehicles collide with each other, overturn, run off roadways, or strike pedestrians.

The three chief causes of death on nontransport public accidents are drownings, falls, and firearms. Most sports and recreation deaths fall into this category. Transport deaths are those involving transportation other than motor-vehicle. The largest number is associated with water. Three-fourths of the water transport drownings involve boats with a capacity of less than ten persons.

As might be expected, falls are the leading cause of death in home accidents, accounting for 11,800 fatalities in a recent year. Burns and other injuries associated with fires are the next most frequent cause of home deaths. Over four-fifths of accidental poisoning and nearly half of all fatal firearms accidents also occur in the home.

Why employees are safer on the job than they are off the job is a question easily answered. The employee is kept safe at work because these four sound principles of accident prevention are continuously practiced:

- Every effort is made to match the person to the job.
- Employees are trained and motivated to do their jobs the safe way.
- Tools, protective equipment, machines, and the working area are maintained in first-class condition.
- Materials are handled according to safe procedures, and machines are safeguarded.

When the employee checks out at the end of his shift, he leaves behind him this carefully constructed and consistently maintained network of safety. He becomes a member of the general public and as such faces the hazards common to the general public—on the streets and highways, at home, and during hours of recreation. He becomes his own supervisor and his own worker. And his injury experience off the job therefore becomes a measure of his ability to supervise intelligently himself and the members of his family, his own actions and theirs.

To make every worker his own competent supervisor off the job is a task that industry can handle with skill. Industry can educate, motivate, and continually remind employees of the importance of following safe practices off the job, as on the job, without deviation. This, in essence, is the challenge which the off-the-job accident problem presents to industry.

Unless employees are persuaded to base all their actions on these principles, off the job as well as on the job, here are samples of what can happen.

No supervisor would assign an employee who is short on brawn to a heavy manual handling job. But this same individual, making his own decisions at home, thinks that he is perfectly capable of moving a heavy couch by himself. Result of this failure to match man and job: a sprained or strained back, maybe even a slipped disc.

SAFETY OFTEN FORGOTTON OFF THE JOB

While at work, a man would scarcely attempt an electrician's job for which he has had no training. But, either ignoring or forgetting that training is essential for safety, he figures that he can save some money by wiring his garage himself, and winds up a victim of electric shock or burns.

If a man's machine needs repair he reports that fact right away. He knows that both safety and efficiency suffer when defective equipment is used. Now each time he drives, he notices the brakes on his car seem to be getting weaker. He figures that he can get along for a while—but then the brakes fail completely at a busy intersection, and he joins the long list of traffic accident victims.

	Deaths	Injuries
Work	13,800	1,950,000
Motor Vehicle	37,800	1,400,000
Home	26,500	4,000,000
Public	16,500	2,050,000
*Total	91,500	9,300,000
Hon-Work Total	80,800	7,450,000

*Totals eliminate duplications among classes

A shear is guarded to keep fingers away from the point of danger. An employee can operate that shear day in and day out with safety and confidence, knowing that he is protected from injury. But he thinks nothing of running an unguarded power lawn mower, until the day he slips on the grass and his foot slides under the mower while the power is on.

NON-WORK ACCIDENTS LEAD TO HIGHER COSTS

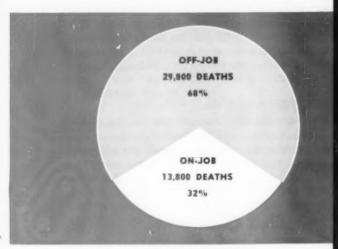
The effects of off-the-job accidents on business and industry, on the community and the nation, and on the employee himself are manifold. These effects, like the costs, are both direct and indirect.

Absenteeism is an obvious result—a problem that plagues industry because it leads to higher costs and lower production through loss of skilled and experienced manpower.

It is a matter of simple arithmetic that off-the-job accidents increase the cost of doing business. For insured companies, insured costs include the premiums for those portions of health and accident policies applicable to off-the-job accidents. For self-insured companies, "insured" costs include the amount of claims paid for medical and hospital expenses, plus the cost of administering the programs. The wage costs for injured employees are estimated to total as high as \$350,000,000 a year.

A much more overwhelming cost figure results when some of the easily obtainable additional costs of off-the-job accidents are added to the above wage costs.

One substantial item is the cost of wages paid for time which is either completely nonproductive or results in production below an acceptable standard. Included here are wages paid to workers while their output following an injury is still low. If replacement workers must be hired, personnel department costs,



ON-JOB AND OFF-JOB ACCIDENTS OF WORKERS

OFF-JOB 45,000,000 DAYS 61% ON-JOB 41,000,000 DAYS 39%

DAYS LOST FROM WORK

wages paid to supervisors for time spent in training the new people, and wages paid to the replacement workers during the break-in period must be figured. The cost of tools damaged and materials spoiled by new and inexpert workers must also not be overlooked. Finally, wages paid to noninjured employees for time spent in visiting injured workers or attending funerals or whose work was delayed because an injured worker was a member of a team, because his output was needed, or because they just stood around talking about his accident must be added.

Higher rates for automobile, fire, and public liability insurance, as well as for medical and hospital insurance, can be regarded, at least in part, as additional costs resulting from off-the-job accidents. So also can nursing and medical expenses during the period of rehabilitation, even though these expenses are absorbed by the company's medical department.

To sum up in terms of dollars, the additional costs of off-the-job accidents are estimated to be \$200,-000,000 annually. (These costs cover both injuries which cause lost time and those which do not.) This figure, added to the \$350,000,000 estimated for wage costs for injured employees, gives a grand total of \$550,000,000 in off-the-job accident costs to employers each year.

TRAFFIC ACCIDENT MEANS LOST PRODUCTION

In addition to dollar costs, industry pays for offthe-job accidents in other ways. Consider the case of the foreman whose car collides with a truck when he tries to pass on a curve. His workers look to him for quick decisions, sound judgment, and accurate pacing of the work. Because he is laid up, the team must operate under less competent leadership. Production falls off enough to make the department miss by a very small margin filling a large rush order and thereby meeting a contract. Result: the team loses the bonuses it might have earned, and the company loses an inestimable amount of good will and is passed by when it bids the next time on a similar job. Just one failure to observe the rules of safe driving can set in motion an irreversible chain reaction with loss of one kind or another to everyone concerned.

ANXIETY AFFECTS WORK EFFICIENCY

Personal costs to the injured employee are sometimes beyond measure. He alone must endure the suffering, possibly even permanent disability or reduction in life expectancy. His earning power may be so seriously reduced that his family has to lower its standard of living. His home life will almost certainly be upset. These are among the visible effects.

More subtle effects, however, in the form of mental anguish, often are as responsible as physical pain or impairment for reducing the efficiency of injured employees. Emotional balance is essential to mental alertness. Worry and anxiety can lead rapidly to an alarming neglect of safety and drop in efficiency. The result may well be an increase in on-the-job accidents.

If the full scope of the off-the-job accident problem is to be realized, the fact that its ramifications permeate the life of the community and of the nation itself must be understood.

A good example is provided by traffic accidents. (Nearly 46 per cent of the motor vehicle deaths recorded annually occur to employees while off the job.) The Business Advisory Panel of The President's Committee for Traffic Safety has come to this conclusion: "Unless the motor vehicle can carry a steadily increasing load of people and goods safely

in our expanding national economy, a limitation is imposed on the growth of the economy itself."

Each particular accident may have far-reaching effects. An accident victim may be faced with medical and hospital bills not fully covered by insurance. By the time he has caught up with them, he may have nothing left to cover other personal obligations, such as taxes and mortgage payments. If his resources are entirely depleted and he has to seek financial help, he becomes an economic liability to his community.

Industry is asked to support hospitals, philanthropic organizations, and welfare work in the community. These services are normally overburdened and understaffed. If only the victims of accidents occurring off the job—the employees who are injured on the streets and highways, the people who fall down their basement stairs, the children who take poisons left within their reach—are subtracted, a large part of the welfare load is removed.

MANY REASONS FOR INDUSTRY'S INTEREST

The off-the-job accident toll throughout the country is growing so large that industry must inevitably accept its share of the responsibility for preventive action. The facts of off-the-job accidents suggest a number of sound reasons why a vigorous off-the-job safety program deserves the attention and active support of every company, no matter what its size, its product or service, on its current on-the-job safety record.

The humanitarian reason, of course, is a primary

one, and it speaks for itself. No one wants to see his friends and associates suffer. So, among men of good will, acceptance of the humane factor as sufficient reason can be assumed. But there are other honest reasons, too, and they make good business sense.

OFF-THE-JOB SAFETY UPS PROFITS

The expense of operating an off-the-job safety program can be justified quite simply by the fact that the company, after all, is being run for profit. An aggressive management does not hesitate to hire the best-trained personnel, to buy machines of the finest quality, to earmark liberal amounts for advertising, with the aim of increasing profits.

By the same line of reasoning, an off-the-job safety program can be considered as a means of increasing profits. Accident-free employees will be at work more of the time, and they will be more efficient. There will be less spoilage of materials, less damage to tools and machines, and higher rates of production.

An active off-the-job program can help build good employee relations. It is substantial evidence that the company believes in the dignity and worth of each employee. It provides an opportunity for the company to reach into the homes of its employees, to treat them as individuals whose well-being and happiness are truly the concern of their employer.

The objection may be raised that paternalism is likely to enter the scene when a company interests itself in the off-hours activity of its employees. But it need not if the approach is intelligent and friendly.

SOME CONSEQUENCES OF OFF-JOB ACCIDENTS . . .

INCREASED MEDICAL COSTS

LEFT

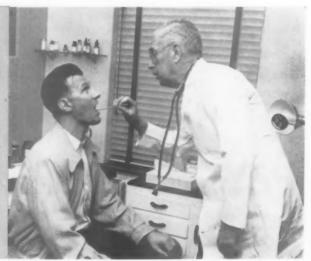
Many off-the-job accidents result in en-the-job medical costs. This is particularly true of such do-ityourself injuries as backaches and strains acquired from weekend projects in home and yard.

CENTER

When a skilled worker, such as the one pictured here, is injured at home or in traffic, it is not easy to find another man who can adequately fill the job.

RIGHT

Securing and training replacements for any job is costly for both personnel departments and supervision. And the autput of the new employee is necessarily lower than that of a veteran.



An effective off-the-job safety program can mean better public relations as well. It enhances the role of a company as a public-spirited member of the community. It is a tangible demonstration that a company recognizes its public obligations and is meeting them with constructive action which contributes to the general welfare.

Many companies have found that their off-the-job safety programs provide an unforeseen bonus in helping to prevent accidents on the job. In fact, a steady effort in the field of off-the-job accident prevention characteristically is accompanied by a steady reduction in work injuries.

A sound psychological reason accounts for this interaction between safety on the job and safety off the job. The same reason underlies the development of psychosomatic medicine and modern methods of education. It is that people are *whole* individuals. As such, they learn best when an idea has application to all the various aspects of their lives.

INDUSTRY MOST EXPERIENCED IN SAFETY

In the field of accident prevention, industry has greater experience and skill than do other groups in the community which may be concerned with the same objectives. This fact in itself is good reason why promotion of off-the-job safety is a task for industry.

For many years, industry has been training people to work safely. People who already know the value of safety on the job can be more easily convinced of the value of safety off the job, and through the worker his family can be reached. Moreover, industry has developed successful accident prevention methods and techniques, knows how to organize safety programs, and has personnel with the knowledge and experience necessary to make the programs effective.

ON-JOB FREQUENCY DROPPED 50 PER CENT

That off-the-job safety programs pay off, that they reduce the incidence of injuries both on and off the job is eloquently attested to by the records of numerous companies which have pioneered in attacking the total problem of accident prevention. Here are only a few examples, but they are typical.

In one case, the on-the-job frequency rate dropped 50 per cent in five years, and, while the reduction in the off-the-job rate was not so great, still it showed substantial progress, going in four years from 6.34 to 4.89. Off-the-job motor-vehicle fatalities for this same company also declined over a four-year period, from about the national rate to 40 per cent less than the national rate for all workers.

Another example of simultaneous decline in onthe-job and off-the-job injury rates turned up in a company whose figures for each of three years were: on-the-job frequency rate, 1.5, .82, and .36; off-the-job frequency rate, 15.05, 13.29, and 11.7.

In one year, a third company cut its number of days lost because of off-the-job injuries nearly in half, from 1,138 to 695.

These improvements are impressive. They assume full significance, however, only when translated from statistics into terms of human happiness and wellbeing and of economic stability for the company, the community, and the nation.

LOSS OF SKILLED MANPOWER

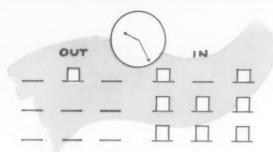


TIME SPENT IN RETRAINING



HOW

TO GET STARTED



ONCE a company has decided to set up an offthe-job safety program, the first step is to establish a fact-finding and recording routine to obtain accurate data. Through analysis of the data, the magnitude of the company's problem can be ascertained and the types of accidents on which attention should be focused can be identified.

Industry uses various methods and sources for obtaining accurate information on off-the-job accidents to its employees. Daily absentee reports, required by many companies, are commonly used. Home calls on absentees by a visiting nurse often reveal many details concerning an injury which otherwise might be difficult to pin down. An in-plant medical department can obtain information when employees are questioned prior to their return to work after absence due to injury. Payroll reports and the records of insurance companies carrying medical, hospital, and group accident insurance may also be used.

Fact-finding and recording systems may vary considerably from one company to another; each must devise a routine which best suits its own needs. Regardless of the source or method used to obtain the facts, follow-up investigations and interviews of employees injured off the job are usually conducted by the employee's immediate supervisor or by safety department personnel, and the information obtained is recorded on forms especially designed for the purpose.

So that records of off-the-job accidents will be uniform and complete, use of an individual report form is recommended. Such a form should include



the name of the person injured, his age, his address, the department in which he is employed, the date of the accident, the nature of the injury, the part of the body injured, the date of the first full day lost from work, the date of return to work, and a description of the accident. All items should be filled in, and there should be a space for the signature of the person recording the information.

Use of a form which carries not only the major classifications of transportation, home, and public, but also a breakdown under each of these categories is suggested so that data can be easily transposed to other report forms as necessary and readily analyzed for in-plant and program use. The breakdowns given under "Reportable Injuries" have been carefully selected and are recommended.

Monthly and quarterly report forms are used to summarize the data contained in the individual reports. The statistics derived from these reports serve the evaluation purposes of the safety program just as dollars, gallons, and pounds serve the evaluation purposes of production. Carefully compiled and interpreted, they highlight achievements and deficiencies, give management some idea of the value being received for its off-the-job expenditures, and serve as vardsticks by which progress can be measured.

NSC HAS STANDARD REPORT FORMS

So that national statistics can be developed and national trends determined, the Off-the-Job Accident Prevention Committee of the National Safety Council's Industrial Conference urges each company which collects statistical data on its off-the-job injuries to report that information on a quarterly basis to the Council. The Council's quarterly summary report form can be used for this purpose. These statistics are analyzed by experts so specific programs can be recommended for use by industry and by state and local governments.

As with work injuries, a standard method of measuring the off-the-job accident experience is essential if reliable conclusions are to be drawn. The off-the-job frequency formula is based on 312 exposure hours per employee per month. This amount is arrived at in this way:

Normally, an employee works eight hours a day, five days a week. If eight hours a day for sleeping are excluded, there remain eight hours a day or 40 hours

during the work week in which the employee is exposed to injury off the job. In addition, he has two days each week end of 16 exposure hours each. These 72 exposure hours per week multiplied by four and one-third weeks per month total 312 exposure hours per employee per month. No adjustment need be made for overtime since it will be offset by holidays, vacations, and incidental absences.

The off-the-job frequency rate is therefore computed as follows:

$$\frac{\text{Number of OTJ injuries}}{\text{\times 1,000,000}} = \text{OTJ frequency rate}$$

$$\frac{\text{Number of employees}}{\text{\times Number of employees}} = \text{OTJ frequency rate}$$

For example, a plant with 10,000 employees has five off-the-job injuries during March, each causing one day of absence from work. The off-the-job frequency rate for the month will be:

$$\frac{5 \times 1,000,000}{312 \times 10,000} = 1.60$$

REPORTING STANDARDS RESEMBLE ON-THE-JOB

To be classified as reportable, an off-the-job injury must result in an employee's losing one or more full working days or in his being unable to work on one or more nonscheduled work days. No medical opinion is needed. Fatal or permanent injuries are to be included.

Off-the-job injuries are classified in three categories: transportation, home, and public. Transportation injuries are those caused by or resulting from accidents involving an automobile, truck, bicycle, bus, streetcar, motorcycle, railroad, boat, or other form of transportation. Pedestrian traffic injuries are also included here.

Home injuries are those incurred in the home or home yard area, caused by firearms, machinery, tools, fire, explosion, exposure (heat or cold), electricity, toxic material, fall, slip, improper lifting, hot object or material, sharp object, object striking, overexertion, animal, insect, or other cause.

Public injuries are those caused by firearm, fire, explosion, fall, slip, objects striking, animal, insect, fight, assault, exposure (heat or cold), sports, toxic material (such as poison ivy), electricity, or other cause.

The number of man-days lost is the total number of calendar days lost from work plus all intervening holidays, vacations, and other nonscheduled time during which the employee is unable to work because of his injury. If accident and death occur on the same day, no day is lost. If death from an accident is delayed, the number of days lost up to the time of death is included.

It should be noted that schedule charges for permanent partial disabilities or fatalities, used in computation of time lost from occupational injuries, are *not* applied to off-the-job injuries.

After the facts on off-the-job accidents have been gathered and arranged in orderly fashion, the next step is to analyze them for types of injuries, causes, and frequency so that the off-the-job safety program can be tailored to meet specific needs. Supplemental guidance as to where special emphasis should be placed in program planning can often be furnished by local conditions. The location of the plant site, its environment, and the special interests of employee groups, such as skiing, boating, cave exploring, or hunting, are factors which can help in selection of topics and activities.

A good topical breakdown provides a solid structural framework around which the off-the-job safety program can be shaped. A breakdown can be made on the basis of the seasons and their attendant hazards; in terms of home, traffic, and public accident problems; according to accident types and causes.

Whatever form of breakdown is to be used, selection of topics that are timely, interesting and educational will pay dividends in attracting the attention of employees, building up and maintaining their enthusiasm and encouraging their active participation, and guiding them into patterns of safe behavior.

A seasonal breakdown suggests a wide variety of themes. In the spring, good housekeeping, lawn mowers, garden tools, do-it-yourself activities, pruning and planting trees, plowing, and bicycles are some of the topics which can be used. Appropriate to summer are such themes as sports, sunburn, swimming, camping, boating, hiking, fishing, poison ivy, insects, and other specific vacation hazards.

In the fall, hunting and the use of firearms, home power tools, back-to-school hazards, yard clean-up, and repair and storage of summer tools can be stressed. Winter hazards include those associated with winter sports, home heating equipment, the Christmas holidays, and severe weather, such as slippery walks and streets, overexertion from shoveling snow, and exposure to cold.

SOME HAZARDS KNOW NO SEASON

Certain topics can well be used throughout the year with emphasis on hazards peculiar to each season. Examples are lifting, ladders, falls, fire prevention, first aid, holidays, and traffic safety.

If the home, traffic, and public accident categories are to be used as the framework for an off-the-job safety program, the topics listed under each of them for purposes of reporting will furnish numerous themes. These themes can be organized in various ways. In the field of home safety, for instance, hazards can be tackled room by room or on the basis of age groups. In the case of traffic safety, the program can be set up as a series of problems, such as nighttime driving, slippery conditions, car maintenance, and driver training.

The statistical data contained in records and re-

ports of off-the-job injuries will provide themes if the program is to be built around accident types and causes.

Topics can also be selected to tie in with programs of national scope and interest, such as Fire Prevention Week, Sight Conservation Month, Safety Begins at Home, National Campaign for the Prevention of Falls, and Safety Everywhere All the Time. A national theme can be used most effectively when it is interpreted in terms of local conditions, interests, and problems.

RESPONSIBILITY GOES ACROSS THE BOARD

The off-the-job safety program should mesh with the whole job of accident prevention. The safety director, the personnel director, or a central safety committee may be designated to run the program, but in any case the counsel and guidance of top management should be readily available. Areas of responsibility should be clearly defined. If the off-the-job safety program is vaguely considered to be everybody's job, nobody will handle it.

In some cases, the assistance of a special off-thejob safety committee may be valuable. Companies which use such a committee often find that its members contribute immeasurably to the success of the program in that they give safety advice to their peers not as "preachings" from management but as their own sincere convictions. Members can be appointed by management or elected by supervisors and employees. If the company has many women employees, they should be represented on the committee.

Committee meetings should be presided over by

the managing executive or the superintendent. Discussions should be democratic, and every effort should be made to elicit enthusiastic response from committee members, who can then be expected to pass on this same attitude to the other employees.

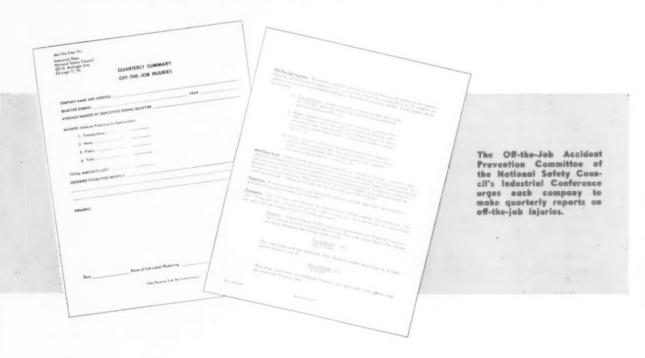
A receptive climate must be developed if an offthe-job safety program is to be launched successfully. It may be feared that employees will resent attempts to influence their behavior away from the job, even though they obviously stand to gain. Every man feels that what he does on his own time is his own business and that his home is his castle. So all approaches to the problem of off-the-job safety and all efforts to create a favorable climate in which to promote a successful program must plainly be in terms of the employee's own interest—the protection of himself and his family.

A company can get its off-the-job safety program under way by holding a general meeting of all employees, presided over by a company official, with brief talks by other executives. Proposed activities should be explained, and the employees' participation and cooperation subtly requested.

PROGRAM BEGINS AT THE BEGINNING

New employees can be reached through the regular indoctrination program during which the various company policies are explained. What safety both on the job and off the job means to the employee, his family, and the company should be carefully pointed out, and the fact that he is expected to cooperate fully in following safe practices should be made clear.

Since many of the women in the company are both wage earners and homemakers, special appeals for



their support and participation can be made to them in their roles as wives and mothers, with others dependent upon them for guidance and security.

Separate meetings of foremen and supervisors are advisable, to impress upon them the importance of the part they must play as leaders in the program and to show them how necessary the program is from an economic point of view. Supervisors and foremen are already thoroughly familiar with the reasons for preventing work injuries; they need only be shown that precisely the same reasons apply to prevention of injuries off the job. Their function as leaders and the prime importance of example may be given special emphasis.

HOW TO WORK WITH COMMUNITY GROUPS

Every community has special interest groups and organizations which are already concerned with various phases of off-the-job safety and which will lend their resources and personnel to assist in company activities. Among such groups are the local safety council; Chamber of Commerce; service clubs; Red Cross; local papers; radio and TV stations; health, police, and fire departments; parent-teacher associations; and rescue squads and emergency service groups.

The local women's club can be an especially strong source of support for off-the-job safety. The club may well adopt home, traffic, or recreation safety as its project for the year and, in so doing, secure the participation of many women who, being neither jobholders themselves nor married to men in industry, may be difficult to reach.

Assistance may also be obtained from state safety organizations; medical, visiting nurse, and other associations; poison control centers; state police; insurance companies; and public health groups.

A few of these groups maintain records of accidents, some participate in special programs, some publish bulletins on health and safety subjects, and some conduct courses in subjects related to off-the-job safety.

Ways in which a company can work with various community groups in planning interesting and effective off-the-job safety activities are virtually unlimited. To suggest only a few examples, a company can cooperate with the municipal recreation department in promoting swimming classes or courses of instruction in boating safety. The assistance of the Red Cross can be enlisted to conduct a series of first-aid courses. The local police can be asked to supervise an auto inspection clinic. Insurance companies often either have or can secure the necessary equipment for testing the physical qualifications as well as the skills of drivers.

Company personnel can in turn provide leadership and support for community activities. For instance, employees can help form local safety councils, assist schools and churches by making safety inspections upon request, or act as volunteer members of local fire departments.

In some cases, several small companies in a community may consider the possibility of pooling their resources and talents in a joint off-the-job safety program, as is sometimes done with disaster and rescue programs.

Advance publicity is essential for the success of an off-the-job safety program. If the support of employees is to be assured, they must be fully informed concerning objectives, plans, and activities. An informal letter from top management sent to each employee's home will add a personal touch and make clear that the company is concerned about the safety of not only the employee himself but his family as well.

The initial meeting for employees can be followed by other meetings to which the members of his family are also invited. Picnics and other outings, featuring various types of entertainment and safety exhibits, are held by many companies as a means of reaching the families.

The company newsletter, magazine, or paper provides an excellent avenue for publicity. When the off-the-job safety program is ready for announcement a series of articles can carry the word to company personnel. Further coverage can be obtained through use of the company bulletin boards.

The community at large can be kept informed of plans and progress through spot announcements and stories on home, traffic, and recreation safety carried by the local radio and TV stations and the local newspapers. Preparation of such publicity can be financed by several companies together or perhaps by the local safety council. In any event, the importance of accuracy and objectivity in news stories cannot be overemphasized. It should also be remembered that names make news and that good pictures contribute greatly to a message.

Meetings of local organizations, such as church groups, women's and service clubs, PTA, and similar groups, can also be utilized as a means of informing the community at large of off-the-job safety programs and activities.

MAINTAINING INTEREST REQUIRES IMAGINATION

To keep the off-the-job safety program from losing momentum or going stale, a frequent change of pace is necessary. The task of maintaining employee interest requires ingenuity, imagination, and, perhaps above all, an understanding of people. A touch of showmanship and judicious use of humor have their places. Appeals to human interest are paramount. The devices and techniques which have proved their worth in promoting and sustaining interest in occupational safety programs can, of course, be used with equal effectiveness in off-the-job safety programs.

It is standard practice with many foremen throughout industry to give five-minute talks on job hazards to their employees at regular intervals, usually weekly. Interspersed among these talks can be some dealing with off-the-job hazards. The foreman's approach, his own attitude toward safety, and his ability to leave a favorable impression will greatly affect the success of this method.

Charts and graphs can be used to explain the facts of off-the-job accidents to employees, to show types of accidents, frequency, number of days lost, and trends. Graphs and charts should be simple and easy to understand. The data should be kept up to date, and the method of presentation should be varied from time to time.

A giant scoreboard for off-the-job injuries is a device used by some companies. If it is mounted on plant property as companion to a scoreboard on which on-the-job injuries are indicated, employees can tell at a glance what is happening from day to day.

HOW TO RUN CONTESTS

Contests are an effective means of creating interest. Only a few basic principles need be observed. A contest should run for a specified time, the rules should be easy to understand, a simple grading method should be used, and awards should be worth winning.

Well-planned publicity is essential. A contest can be announced through items in the company paper, bulletin board posters, and special flyers. A letter from management, with rules and entry blank, sent to each employee's home indicates management interest in the project and serves as a special invitation to participate.

Essay contests, poster design contests, and limerick or slogan contests, open to employees, their children, and perhaps the entire community, are only a few

SIX STEPS TO SAFETY OFF THE JOB

- Initiate and give executive support and publicity to a broad off-the-job accident prevention program in your organization.
- Make this program a permanent and important function and responsibility of the regular safety organization.
- Encourage employees to take an active part in planning and conducting the program.
- Collect and analyze off-the-job accident data and use them as the basis for preventive activities.
- Develop and maintain the interest of employees and their families by all means available.
- Allocate a reasonable amount in the company budget for carrying on the program.

examples of the many types of competition which can be used. To bring off-the-job safety right into the plant, departmental contests based on departmental off-the-job records for a specified period can be set up.

Stories in the company publications and posters designed to publicize the details of off-the-job injuries which have occurred to company personnel can serve two purposes. They can attract attention, and, if specific preventive measures are suggested (with no implication of scolding or nagging), they can help educate. When such stories are used, it is essential to preserve the anonymity of the individuals concerned.

SAFETY CALENDARS, FILMS AND BOOKLETS

An off-the-job safety calendar with a promotional theme for each month can serve as a constant reminder in the employee's home, as the starting point for safety meeting discussions, and as a subject for special promotion in the plant paper or other publications.

Movies and slidefilms for showing to groups of employees at meetings attended by their families, or at meetings of various community groups are commonly used to stimulate interest. Homemade slidefilms, consisting of a script and color slides, can be particularly effective. By using company personnel and familiar local settings, a homemade film encourages employees to identify themselves closely with the situation presented.

Pamphlets and booklets, home inspection check lists, and other handout publications can be distributed at safety meetings or sent to the homes of employees. The effectiveness of such material will be increased if its distribution is strategically timed. Interest in a booklet on vacation hazards, for instance, will be highest immediately preceding the employee's own vacation, and he will be more likely to read it with attention if it is given to him just before he leaves.

USE OF PLANT PUBLIC ADDRESS SYSTEM

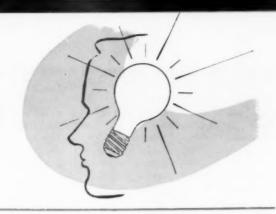
Brief messages on off-the-job safety, perhaps in song or verse, can be broadcast now and then over the plant's public address or loudspeaker system.

The company's suggestion system can be expanded to include suggestions on off-the-job safety, with publicity and awards for the best ideas submitted. Suggestions based on carryover of plant safety techniques will have special promotional value.

Numerous other devices, techniques, and gimmicks can be found or devised to serve the purposes of the off-the-job safety program. Sources of material and ideas are so plentiful that the chief problem of program planners is likely to be that of selection and adaptation in terms of local needs, interests, and objectives.

IDEAS

THAT BUILD INTEREST



A PPROACHES to off-the-job accident prevention are many and varied. Although the examples given here are necessarily few in number, it is hoped they will spark the thinking and help with the planning of managements which have determined to tackle the *whole* job of accident prevention.

A comprehensive program based on a slogan and a symbol which will act as recall devices to convey the idea of safety often and quickly has been developed by Allis-Chalmers Manufacturing Company in cooperation with the National Safety Council. The program is designed to give the employee and his family full-time protection by making them constantly aware of safety as a total concept. Recognizing both the need for such a campaign and the impact which this entirely new approach can have on a national basis, the Council has expanded the program and made it an NSC service.

The slogan, "Safety Everywhere—All the Time," is also the title of the full-color motion picture which is the kickoff feature for the program. In this film, an entire family learns that safety is a family affair—to be practiced everywhere, all the time. So the symbol, an adaptation of the yellow diamond used on highway warning signs, will become a continuing symbol for the whole program, it appears on the screen time after time.

Teaser materials, to arouse interest before the film showing, consist of buttons bearing the diamond symbol and easels for use on office desks or plant cafeteria tables. These materials can also serve as recall devices to achieve continuity and repetition and thus maintain interest after the film showing.

Other materials promoting the symbol and theme of the program include special posters, leaflets, large banners, scoreboards, stickers for correspondence, pens, and key tags. To help make safety a family concern, a home scoreboard is provided. Other methods to promote this safety campaign both on the job and off the job are being planned. Full information is available from Council headquarters.

A rich harvest in ideas and a good list of basic activities resulted from the work of an off-the-job safety study group set up by Lago Oil & Transport Company, Ltd., Aruba, Netherlands Antilles. After thorough study of the company's off-the-job accident problem, the group recommended that:

- At least one off-the-job safety talk be given each month.
- Company and community publications be used to carry safety information.
- Regular radio programs of entertainment with short safety remarks be scheduled.
- 4. One new safety film be acquired each month for showing during lunch hours, with safety talks, and at community meetings; six 35 mm traffic safety film trailers be shown on a trial basis with the newreels of the regular movies on the island.
- Off-the-job safety pamphlets be made available at strategic places, and a suitable pamphlet be mailed to each employee's home every six months.
- The company promote and assist with community meetings.
- 7. Contests of various types be held.
- Thermometer-type scoreboards for off-the-job injuries be set up.
- Several series of color slides with scripts be made for safety training purposes.
- A driver testing ground for testing both driving ability and vehicles be set up.
- Posters and pamphlets to promote island-wide safety in recreation be made available to the Lago Sport Park Board and similar groups; particular emphasis be placed on water sports.
- A Safety Carnival with exhibits and demonstrations be held to build community good will and interest in the off-the-job safety program.

GOOD REPORTING PROCEDURE ESSENTIAL

A basic element in a sound off-the-job safety program is a good reporting procedure. American Telephone and Telegraph Company developed and published in pamphlet form a uniform method for recording and measuring off-duty injury experience for the use of Bell System companies. A companywide Summary of Off-Duty Injuries compiled from the reports of the operating companies and systems is issued quarterly to company officials.

The reports of the operating companies have provided the basis for off-duty safety activities, increased interest in the whole problem, and stimulated interdepartmental off-duty accident prevention.

A two-day safety convention held at the Indiana Ordnance Works of E. I. du Pont de Nemours & Company provided an excellent opportunity for about 120 delegates representing the different safety meeting groups of the works to exchange ideas with management and with one another on four separate safety subjects. The second morning was devoted to off-the-job safety with emphasis on the home.

A member of management gave a keynote talk to focus the group's thinking on certain aspects of the subject and to provide background for the discussions to follow. After the film *Home, Safe Home* was shown, the delegates formed discussion groups under trained leaders. As a direct result of their experience at the convention, the delegates became enthusiastic safety salesmen, holding safety meetings and working in other ways to disseminate what they had learned.

When supervisors at the Du Pont Sabine River Works were asked to devote a portion of each safety meeting to off-the-job safety and to try to get maximum participation from individuals, the results were amazing. Virtually every employee showed keen interest in the meetings.

One engineer hit on the idea of recording personal interviews with employees who had suffered off-the-job injuries. He found the people to whom he talked more than willing to describe the details of their accidents as their contribution to the program. He ended up with a thirty-minute program during which six recorded interviews were played while detailed sketches showing how the accidents had occurred were projected on a screen.

In this case and in many other instances, a program prepared for only one group proved so interesting that numerous other groups scheduled it.

BELL PROGRAM CUTS ACCIDENTS 50 PER CENT

The Bell System set up a program called "Defensive Driving" some 10 years ago, and since that time many of the companies have reduced motor vehicle accidents by as much as 50 per cent. One of the western companies offered the Defensive Driving program to a pilot community of 20,000 through the local safety council, and 19 groups asked to participate. The telephone people trained instructors from each group, and they in turn trained their own drivers.

The program got off to a good start—2,000 drivers were trained in the first three months. The venture proved so successful that employees of other telephone companies in various parts of the country undertook to promote the Defensive Driving program in their own communities.

A number of companies have established Safe Drivers Leagues. At one of the Du Pont locations, the Louviers Building, a Safe Drivers League, tried once without success, was reactivated with appointment of a working committee of live-wire employees and first-level supervisors.

Special 10-minute safety meetings were held simultaneously by all supervisors to launch the program; each used a talk prepared by the committee. Three permanent displays were installed at the exits of the parking lots to show the number of calendar days since a lost-time traffic injury. When the numbers drop back to zero, there is a deluge of requests for information.

SILVER DOLLARS FOR THE CORRECT ANSWERS

Among the various techniques used to keep interest high, the "Silver Dollar for Safety" program proved especially successful. Questions with answers from the driver's manual published by the state motor vehicle department were used by the "Silver Dollar Girl," who each day phoned five employees selected at random. Those answering correctly were given a certificate with a silver dollar. Questions and names of winners were posted daily on the bulletin boards. At the end of the program, all employees were given the list of questions and the correct answers.

An adult driver education program that illustrates how industry and the courts can work together in promoting traffic safety was undertaken by the Traffic Education and Safety Division of the Chicago Municipal Court and the Flick-Reedy Corporation. Invited by the court to take a course sponsored by its Driver Improvement School, Flick-Reedy personnel enrolled 100 per cent.

The course consisted of four weekly sessions of 1½ hours each. Classes, held in the company cafeteria, dealt with accident-causing factors, the anatomy of an accident, correct driving techniques, and traffic laws. Two traffic safety films were shown at each session. At the conclusion of the course, the students were presented with certificates which designated them as "Ambassadors of Safe Driving."

A traffic safety program developed by the Chamber of Commerce of Akron, Ohio, and the Summit County (Ohio) Safety Council proved successful through the cooperation of local industry. Activities in a program of this kind include schools for repeating traffic violators; mock traffic court sessions for high school students; voluntary vehicle inspection programs; youth traffic safety councils; bicycle inspection programs; organization of a Women's Traffic Safety Division. In Summit County, the council's women's division campaigned successfully for state legislation covering the point system for traffic violations and the licensing of adult driver training schools.

Traffic safety reminders used with much success in Akron included large color reproductions of the humorous characters in the National Safety Council's *Highway Zoo*. They were hung on utility poles facing the sidewalks in a downtown area.



The movie family in the film, "Safety Everywhere . . . All the Time," look on with approval at the homemade safety scoreboard for keeping records of home injuries.



Employees and their families were invited to Bayway Refinery to see a safety carnival featuring exhibits of off-the-job safety such as this power mower display.

The Community Vehicle Safety-Check program is designed to arouse public awareness of the need to have vehicles safety-checked periodically and to maintain them in safe driving condition. The program is sponsored by the Auto Industry Highway Safety Committee, Inc., and *Look* magazine, with the cooperation of the Association of State and Provincial Safety Coordinators. It is planned for May, immediately before summer and vacation driving.

VEHICLE CHECK PROGRAM AVAILABLE

The vital need for such a program is indicated by the fact that nearly two of every three registered vehicles are using the streets and highways with no official check having been made to determine safe driving condition. Moreover, reports from states conducting official vehicle inspection programs each year show that as many as 50 per cent or more of all vehicles inspected are rejected because one or more parts require immediate service attention.

The kit of materials includes a *Planning Guide* for the entire program; a manual for operators of safety-check lanes; press, radio, and TV suggestions; and other pieces to guide those supervising the program. Among the many interest-maintaining devices are windshield stickers, "Circle of Safety" membership cards, check lane and street banners, handbills, and posters. The kit is available from the National Vehicle Safety Check for Communities, 2000 K Street, N.W., Washington 6, D.C.

COMPLETE HOME SAFETY PROGRAM PREPARED

A home safety program is sponsored annually by Southern Union Gas Company for the residents in its service areas. The program is designed to call attention to all kinds of home accident sources, with special emphasis on dangers arising from defective equipment and unsafe practices in the use of gas.

Promotional devices and activities have included



A wrecked car served as a dramatic reminder to Caterpillar Tractor employees to drive with care while on vacation. Company also passed out safety folders.



Bell Telephone Co. of Pa. provides schools with mobile display and company personnel to teach children that seconds count in avoiding mishaps in street traffic.

a handout pamphlet containing a home safety check list, 60-second radio skits, and, for newspaper use, ads featuring "Sonny Safety" and giving tips on how to prevent various types of home accidents, as well as a series of stories, the first announcing the program and others dealing with specific home hazards.

ESSAY AND POSTER CONTEST PROMOTES SAFETY

To promote safety around the clock, Esso Standard Oil Company's Bayway Refinery built a successful program around a Home Safety Essay and Poster Contest for the children of its employees and a series of four Home Safety Days for the entire family, during which prizes were presented to contest winners and their posters and essays were displayed. Featured during the Safety Days were traffic safety and fire prevention displays, a lifting demonstration, exhibits on safety in the attic, workshop, garage, and kitchen, a safety quiz, and safety movies.

The entire program was carefully planned, with both advance and follow-up publicity in the plant and community newspapers. A letter of invitation to participate in the contest was sent from top management to every employee's home. Letters with a personal touch were sent to both winners and non-winners, with an invitation to attend one of the Home Safety Days. Separate invitations were issued to noncontestants.

EMPLOYEES PURCHASE HOME FIRE EXTINGUISHERS

That every home should have at least one regular fire extinguisher usable on all fires was the theme of a program held at the Bartgis Division of the New Haven Board & Carton Company, Baltimore. A pressurized dry chemical extinguisher no larger than a 10-pound unit, to be sold to employees at cost, was recommended.

To promote the program, two fire demonstrations were put on for employees and a letter was sent to their homes. Members of the employees' safety committee handled the details of selling, and arrangements were made with an outside firm to recharge the extinguishers. To indicate the degree of success achieved by the campaign, only 10 per cent coverage had been hoped for, but more than 38 per cent of the employees bought extinguishers for their homes.

A white Safety Display Bus has proved an effective device at the Indiana Ordnance Works. It is outfitted with a completely new exhibit bimonthly and driven to the work location of each employee, who is then given a guided tour through it. Preparation of the exhibits is rotated among the 10 departments, and much competition has resulted. Children's doll houses have sometimes been used to demonstrate safe and unsafe practices in the home.

Many devices are used to reach the employee's entire family. In one case, a postal card bearing a

secret message regarding safety items in the home was sent to each family. The card had to be dipped in water to be read. Prizes were given to the first three employees contacted in each department who knew the safety items on the card.

Letters sent to the homes of employees have included a "Safety Valentine," a letter to both the employee and his wife on vacation hazards, another on safety over the Labor Day week end, and still another on off-plant safety addressed to "the woman of the house."

Examples of the varied safety reminders that have been used are a spring hazards booklet with a packet of flower seeds attached to it, stoppers for soda bottles inscribed "Cap-off Home Injuries," cards carrying "Tips to the Baby Sitter," snow and sleet scrapers imprinted with a safety slogan, and outdoor thermometers with a safety message on them.

IN-PLANT MATERIAL USEFUL IN COMMUNITY

That material prepared for the in-plant safety program can sometimes find wide usefulness throughout a community has been the experience of Delco-Remy Division of General Motors Corporation. Safety bulletins prepared by the division are posted on bulletin boards and used by supervisors in developing five-minute talks.

The numerous requests for copies of the bulletins on off-the-job safety subjects from schools, civic organizations, and other community groups have led to the conclusion that these bulletins are effective instruments for helping to create good safety attitudes. Examples of off-the-job subjects discussed in the bulletins are "Will You Let Them Get to School and Back—Safely?" "Falls," "Poisoned at Home!" "Traffic Slaughter" (a series); discarded refrigerators; and rotary lawn mowers.

The Children's Summer Safety Game, ninth in a series of public relations messages on child safety developed by Allis-Chalmers Manufacturing Company, was distributed by schools, company plants, and others to some 300,000 children in 16 cities in the United States and Canada.

The game is based on typical situations encountered in summer play—at home, at the beach, at a playground, and while riding bicycles. Simple basic safety rules are listed for each activity. Penalties are provided for unsafe acts and rewards for safe ones.

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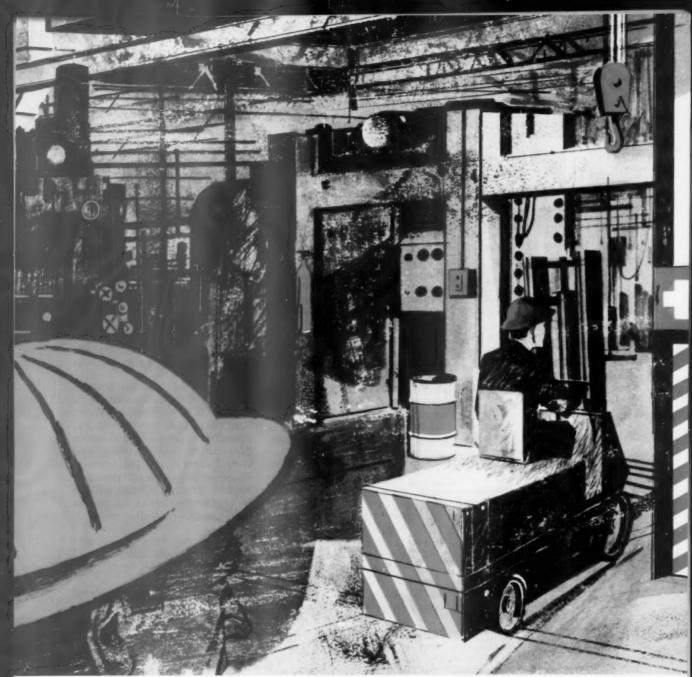
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Reprints of this special section available from National Safety Council.

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PERSONALS

News of people in safety and related activities

Otto Holmskog Retires

OTTO S. HOLMSKOG, one of the leading construction safety specialists in the world and perhaps the first to be hired by an insurance company, retired April 1 from his post with Employers Mutuals of Wausau, Wis.

During his 27 years with Employers Mutuals, Mr. Holmskog's, accident prevention counseling contributed to saving many lives and millions of dollars for policyholders on such projects as the Mississippi River Locks, Chicago subway system, U. S. Naval Base at Guam, Distant Early Warning Line in Alaska, Great Salt Lake railroad bed, Richmond-San Rafael Bridge in California, Atomic Energy Commission plant at Oak Ridge, Tenn., the Fort Randall Dam, Green Mountain Dam, Oahe Dam, the St. Lawrence Seaway project and hundreds of others. He was honored last year with special awards by the Associated General Contractors of America and the Construction Section of the National Safety Council.

A series of booklets Mr. Holmskog wrote on construction accident prevention are in use throughout the world. He pioneered in such now generally accepted techniques as "tool box" safety discussions, the use of dramatic safety demonstrations and in many other areas. Born in Malmo, Sweden, Otto Holmskog was graduated from Vesterass School of Technology, Vesterass, Sweden, with a degree in architectural engineering. He soon moved to the United States and, prior to joining Employers Mutuals of Wausau in 1933, held positions with construction and architectural firms in Green Bay and Wausau.

Two safety specialists have been given new responsibilities with Employers Mutuals. RALPH L. WARD, Illinois Branch office safety engineer, has moved to Wausau to be a construction safety specialist in the home office. His work includes research and development of technical and educational material for engineers and policyholders. He will aid the underwriting department in developing rates for major construction risks and in determining their desirability.

J. F. HUNTMAN, formerly a field construction specialist in the Albany office, is also assigned to the home office staff but will be located in the Illinois branch office, River Forest, as a construction specialist. In addition to taking over some of the field service work, he will represent Employers Mutuals in liaison with the National Safety Council, National Association of Mutual Casualty Companies, Associated General Contractors, and other organizations.

DR. E. M. ADAMS, Dow Chemical Company, Midland, Mich., has been elected chairman of the Air Pollution Abatement Committee of the Manufacturing Chemists' Association. He succeeds A. B. Pettit of W. R. Grace & Company, New York.

O. C. THOMPSON, Union Carbide Corporation, South Charleston, W. Va., has been elected vice-chairman.

Appointment of Douglas W. Brown as safety engineer, United States Steel Corporation, has been announced by Dan Farrell, director of safety-personnel services for the corporation.

A resident of Highland Park, Ill., Mr. Brown was graduated from Highland Park High School in 1938. He attended Beloit College, Beloit, Wis., and Lake Forest College, Lake Forest, Ill., majoring in business administration.

His first job with U. S. Steel was industrial relations trainee in 1945 at the Edgar Thomson Works, Braddock, Pa. A year later he was promoted to supervisor of safety there and in 1951 was transferred to the Fairless Works, Fairless Hills, Pa., where he became general supervisor of safety. It was this position he held at the time of his present appointment.

ROBERT G. BELKNAP recently joined the National Safety Council as staff representative for the Textile and Rubber Sections.

Mr. Belknap has been employed by the Bemis Bro. Bag Co. where he served as company safety coordinator and personnel manager of the East Pepperell, Mass. paper bag



Otto S. Holmskog



Ralph Ward



J. F. Huntman

plant. He has been active in the Pulp and Paper Section since 1950, holding various offices and serving as general chairman in 1959. He was also active in various safety groups in Massachusetts.



R. G. Belknap

He is a graduate of the University of Missouri and served in the Air Force during World War II.

JACK C. RADCLIFFE, superintendent of industrial safety for Ford Motor Company, Dearborn, Mich., has been elected president of the Industrial Hygiene Association. He succeeds Elmer P. Wheeler, Monsanto Chemical Company, St. Louis.

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Diary of a Safety Engineer

-From page 31

utes and tell you you've got a fatal out in the shop. You knew that when you signed on as a safety man. But you also know that, in the long run, whether your record is good or bad isn't a matter of luck at all. So do your darndest, and hope for the best."

Bill fiddled with a paper clip, bending it into odd shapes until, at last, the tired metal broke between his fingers.

"Look," he said, "what I mean is this. I know all about the need for high standards of statistical reliability in reporting accidents. I know all about the futility of chiseling on the record. But this is different. A lot rides on delaying that first blot on the record. Maybe, in the long run, a lot of accidents can be prevented every day if only we can keep the record clean for a few months. It might even save lives.

"So I think I'd be morally justified, just at the start here, if I pass the word quietly to personnel, and maybe if a guy sprains an ankle, we could bring him in and let him do bench work or file index cards or something till he's better. I don't mean to cover up anything serious, but I sure think I could honestly shade the record a little on borderline cases, just at the start, for the sake of the long-run gain."

"No," I said.
"Why?" he asked.

I took my time answering, because I know this was a case where I had to win my point. Finally I said, "There are three reasons, Bill. There's a simple and practical one—that once you start chiseling, when do you stop? If you've got a reason for chiseling now, when your record is good, wouldn't you make yourself think you had a better one if your record wasn't good?

"Secondly, there's the matter of social need. What you need, what your management needs, what your employees need, and what the whole industrial community needs is a frank facing up to our failures, and a rigorous analysis of every accident. You start monkeying with the data, and you start misleading everybody, including yourself.

"But there's a third reason, and whether we like the word or not,

Circle Item No. 54-Reader Service Card

it's a moral one. You've told me I am a Machiavelli because I'll look for levers to use to pry people into accident prevention action. O.K., I do that. But one thing no safety man must ever do is lie about accidents.

"Oh, I'll put a confident or an alarmist tone into a report; I'll give a cooperative foreman a chance to correct a condition before reporting it. But there is an ultimate truth beyond all the maneuvering in this business, and that truth is the accident record itself. That is the test of everything we do, including the maneuvering. If we let ourselves lie about that, we have no moral rock to build on, and we betray ourselves, our co-workers, and the safety cause."

Bill sat quite a while, silent, and then said, "I don't know that you're right. I distrust all these absolute positions. Ends do justify means."

"I can't argue this, Bill," I said.
"I know how strong the temptation is—was there ever a safety man who didn't want to sweep one inconvenient accident under the rug? But this is one temptation you must not give in to. The record has got to be straight, or you will never be able to do the job well. I'm not talking about what it will cost you in lost respect. I'm not talking about the fact that I couldn't work with you—you could do without me.

"What I'm talking about is the betrayal of yourself, and the collapse of the moral character, which is the only thing that makes a safety man able to do his job."

Bill Malloy sat silent again, and finally shrugged his shoulders, grinned a sort of sad grin, and said, "You sound like old Father Ryan back at St. Pat's when I was a boy. Just like him, rest his soul! I didn't always do what he said, but I always knew I was wrong when I didn't.

"Thanks, damn you. Now get out and let me get to work!"

CORRECTION

The film, It's Up to You, listed on page 132 of the May, 1960 NATIONAL SAFETY NEWS as a certificate winner, should have been shown as a bronze plaque award winner. The film was produced by Harvest Films for National Society for the Prevention of Blindness.



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COMING



in safety and related fields

June 7, Bridgeport, Conn.

Fifteenth Annual Statewide Conference of The Connecticut Safety Society (University of Bridgeport). W. W. White, 855 Burnsford Ave., Bridgeport, Conn.

June 9, Rhinelander, Wis.

Wisconsin River Valley Conference. R. W. Gillette, executive director, Wisconsin Council of Safety, Inc., 1 West Wilson St., Madison, Wis.

June 16, Oshkosh, Wis.

Fox River Valley and Lakeshore Conferences, R. W. Gillette, executive director, Wisconsin Council of Safety, Inc., 1 West Wilson St., Madison, Wis.

June 16-17, Grand Forks, N. D.

Governor's Safety Conference. Floyd J. Upham, Division of Public Safety, State Highway Department, Bismarck, N.D.

June 19-22, Ithaca, N. Y.

Seventh National Conference on Campus Safety (Cornell University). Francis J. Quinlan, Campus Safety Association, c/o Division of Safety, Cornell University, Ithaca, N.Y.

Sept. 15-16, Rockland, Maine,

Thirty-third Annual Maine State Safety Conference (Samoset Hotel). Arthur F. Minchin, secretary, Department of Labor and Industry, State House, Augusta, Maine.



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Sept. 22-23, Baltimore, Md.

Governor's Annual Safety Health Conference and Exhibit (Hotel Emerson). Joseph A. Haller, executive chairman, Safety Conference, State of Maryland, 301 W. Preston St., Baltimore 1, Md.

Sept. 27, Manhattan, Kan.

Eleventh Governor's Industrial Safety Conference of Kansas, (Kansas State University). Harold L. Smith, Commissioner of Labor, c/o Department of Labor, 401 Topeka Blvd., Topeka, Kan.

Oct. 10-12, Charlotte, N. C.

Twentieth Congress on Industrial Health. (Hotel Charlotte). Dr. B. Dixon Holland, secretary, Council on Occupational Health, American Medical Association, 535 N. Dearborn St., Chicago 10.

Oct. 17-21, Chicago.

Forty-eighth National Safety Congress and Exposition (Conrad-Hilton Hotel). R. L. Forney, secretary, National Safety Council.

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-From page 54

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Fire Protection

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Traffic Division, Olympia, Wash.

Radiation

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"Some Health Hazards Associated With the Manufacture of Commercial Jet Aircraft." M. Chain Robbins. Industrial Hygiene Journal, April 1960. pp182-185.

"Tennis Elbow." James Wall. Industrial Medicine and Surgery. April 1960. pp173-175.

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"Grand Rapids Nursing Homes Raise Standards." Nursing Homes. March 1960. pp2-3.

Lumber Industry

"Portable Camps Without Skids." D. G. Parsons. Pulp and Paper Magazine of Canada. March 1960. pp157-3-168-8.

Material Handling

"Damage Reducer." J. C. Huntling. Railway Age. Mar. 28, 1960. p. 18. "New System Standardizes Container Handling." Modern Railroads.

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"Thin-Seam Conveyor Mining Under Weak Roof." Coal Age. April 1960. pp136-138.

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"Safety Seminars for Maintenance Workers." Roads and Streets. April 1960. pp92, 95.

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155.

"Protecting and Cleaning Hands Contaminated by Synthetic Fallout Under Field Conditions," R. H. Black. Industrial Hygiene Journal. April 1960. pp162-168.

ADDRESSES OF MAGAZINES

Readers are asked to send their requests for copies of magazine articles to the publishers. The NSC Library is unable to fill such orders

AMA Archives of Industrial Health, 535

N. Dearborn St., Chicago 10. American Association of Industrial Nurses Journal, 654 Madison Ave., New York 21. American Journal of Public Health, 1790 Broadway, New York 19.

Coal Age, 330 W. 42nd St., New York 36. The Constructor, A. G. C. Bldg., 1957 St., N. W., Washington 6, D. C

Electric Light and Power, 6 N. Michigan Ave., Chicago 2. Engineering News-Record, 330 W. 42nd

St., New York 36. Excavating Engineer, 2302 10th Ave.,

South Milwaukee, Wis.
The Explosives Engineer, 613 Delaware

Trust Bldg., Wilmington, Del. Fire Engineering, 305 E. 45th St., New

Industrial Hygiene Journal, 1014 Broad-

way, Cincinnati 2, Ohio. Industrial Medicine and Surgery, P. O. Box 44-306, Miami 44, Fla.

Journal of American Insurance, 20 N. Wacker Dr., Chicago 6.
Journal of Occupational Medicine, 28 E.

Jackson Blvd., Chicago 4.

Mechanical Contractor, Suite 570, 45

Rockefeller Plaza, New York 20. Modern Railroads, 201 N. Wells St., Chi-

cago 6. Nursing Homes, Hotel Bancroft, Spring-

field, Ohio. Nursing World, 41 E. 42nd St., New

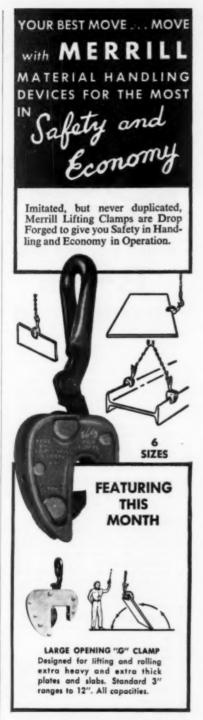
York 17. The Plant, Plant Publishing Co., St. Joseph, Mich.

Pulp and Paper Magazine of Canada, National Business Publications, Gardenville, Oue., Canada.

Railway Age, Simmons-Boardman Co., Orange, Conn.

Roads and Streets, Gillette Publishing Co.,

22 W. Maple St., Chicago 10. U. S. Armed Forces Medical Journal, Superintendent of Documents, Washington



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This method of one-way radio communication is used not only in heavy steel rigging, but also in placement of large transformers. Often in this type of job, the rigging crew might be down in a vault. They would not be able to see hand signals, but they do hear the foreman's instructions and act accordingly.



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Circle Item No. 65—Reader Service Card National Safety News, June, 1960



4 NEW SAFETYGRAPHS

these "flip-chart" presentations are self-contained safety sessions

Three new Maritime safetygraphs and a new safetygraph on Hospital Patient Safety have been added to the selection of safetygraph titles now available from the National Safety Council. These colorfully illustrated safety talks make the job of teaching easy, even for the inexperienced instructor.

With illustrations on the front of each sheet and text on the back for the instructor, safetygraphs are self-contained safety training sessions. They are easy to use, convey their message clearly to the audience, and are more likely to be remembered than the simple "safety talk."



174.82 HOSPITAL PATIENT SAFETY. "The first obligation of the hospital is the patient's safety," this safetygraph begins. It then goes on to discuss various hazardous conditions encountered in hospitals from the time of the patient's entry throughout his stay in the hospital.

174.84 ACCIDENTS DON'T HAPPEN (Maritime). Discusses unsafe acts and conditions which set the stage for accidents and how to put a stop to them. Drawings illustrate examples of poor housekeeping, unsafe surroundings, poor equipment and hazardous arrangements or methods as unsafe conditions aboard ship. It also covers such unsafe acts as standing too close to moving equipment, operating at unsafe speeds, failure to use personal protective equipment and horseplay.

174.85 SHIP REPAIR (Maritime). Outlines the most common hazards encountered in ship repair work such as falls, poor housekeeping, falling objects, improper handling of materials, hand tools in poor condition, "dead air" and toxic or explosive vapors or gases, and how to avoid injuries from any of these causes.

174.83 HOW TO LIFT (Maritime). Covers the wrong and right ways to lift, how to keep from being injured by nails or sharp edges, how to avoid strains and bruises resulting from lifting operations aboard ship. It also illustrates nine points to remember in lifting to avoid injuries.

SAFETYGRAPHS (any selection) Price each: 1-\$14.00; 2-\$12.50; 10-\$12.00; 100-\$11.50.



174.99 SAFETYGRAPH EASELS. Safetygraphs fit into a brown leatherette easel which is available at extra cost. Please order easel separately. Price each, \$4.50.

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Slogans and verses have always played a strong part in any campaign and safety is no exception. Rhyme and Reason, the newest edition of the Council's famous collections of slogans and verses contains hundreds of slogans, and for the first time, a new section of verses ranging from two-line quickies to a 26-stanza work on the ABC's of safe driving -one stanza for each letter.

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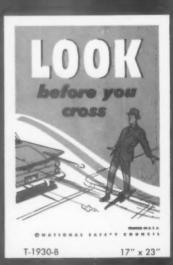
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OUKLETSEL

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SAFETY HINTS FOR THE ELDERLY

A series of four leaflets, Poor Sight, Tire Easily, A Little Shaky and Forget Things, discussing common physical impairments of the aged and suggesting environmental aids and personal practices that will help to prevent accidents. The leaflets are four pages each and are illustrated in full color. The language used requires no more than eighth grade reading skills.

STOCK NO. 599.10—Cost per set: 10—\$.12; 50—\$.11; 500—\$.092; 1000—\$.084.

WHERE DO YOUR KIDS PLAY

A booklet intended to stimulate parent's thinking about the play environment and habits of their school-age children. Each page shows actual photographs of children playing in typical but extremely risky places. The last two pages of the booklet discuss organized and supervised play areas for children. There are eight pages with two-color printing.

STOCK NO. 599.36—Cost per booklet: 50—\$.06; 500—\$.055; 1000—\$.05; 5000—\$.04; 10,000 —\$.037; 20,000—\$.035.

ACCIDENTS IN THE OFFICE

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STOCK NO. 195.50—Cost per booklet: 50—\$.06; 500—\$.05; 1000—\$.045; 5000—\$.043; 10,000—\$.042; 20,000—\$.04.

BEFORE IT'S TOO LATE

Dedicated to "all brave firemen who try to arrive before it's too late," this booklet tells the tragic story of home fires and how to prevent them. Real-life pictures taken at the time of a fire help dramatize the message. Twelve pages, 3¾" x 8". Two-color photographs and illustrations.

STOCK NO. 599.82—Cost per booklet: 50—\$.07; 500—\$.06; 1000—\$.052; 5000—\$.046; 10,000—\$.042; 20,000—\$.04.

VACATION BOUND

The Council's new booklet on accident problems of people on vacation . . . the "happiest two weeks of the year" that are so often marred by accidents. This year's booklet uses a series of cartoons to illustrate principal vacation hazards—swimming and boating accidents, highway accidents, and accidents around the house. It's a light-hearted booklet that can be read in a minute—just the kind to distribute to vacation-bound employees.

STOCK NO. 194.39—Cost per booklet: 50—\$.07; 500—\$.065; 1000—\$.055; 5000—\$.045; 10,000—\$.042; 20,000—\$.04.

WHO GETS HURT?

"Who Gets Hurt in Industrial Accidents?" is the question asked—and answered by this new, multicolored cartoon booklet. Using a humorous approach, this booklet tells the complete on-the-job injury story in a concise manner. Sixteen pages, 3¾" x 8". Full-color illustrations.

STOCK NO. 192.96—Cost per booklet: 50—\$.10; 500—\$.09; 1000—\$.08; 5000—\$.07; 10,000—\$.065; 20,000—\$.055.

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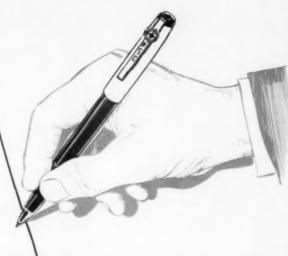
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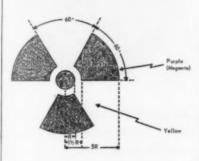
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Radiation Symbol Becomes Official

The trefoil (three-bladed propeller) is now the official indicator of radiation hazards. Approved by the American Standards Association, this American Standard Radiation Symbol, N2.1—1960, is the first standard developed through the sectional committees of the Nuclear Standards Board.

The trefoil—reddish purple on a yellow background—currently is used by almost all organizations engaged in work with radiation or radioactive material. The symbol is put on signs marking entrance to rooms or areas where sources of radiation are present, on bottles,

R = Radius of central disc



containers, and packages of radioactive materials, on X-ray equipment or other machines that generate radiation, and on materials or apparatus contaminated with radioactive substances.

Scope. The radiation symbol specified in the standard is used to signify the actual or potential presence of ionizing radiation and to identify objects, devices, materials, or combinations of materials which emit ionizing radiation.

In this standard, ionizing radiation includes gamma and X-rays, alpha and beta particles, high speed electrons, neutrons, protons, and other nuclear particles; but not sound or radio waves, nor visible, infrared, or ultraviolet light. The standard does not specify the radiation levels at which the symbol is to be used.

Color code. The three blades and center disc are reddish purple (magenta) color similar to American Standard Safety Color Code, Z53.1.

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tion symbol is to be used *only* to signify the actual or potential presence of ionizing radiation as provided in the scope of this standard.

Wording to indicate the nature of the source of radiation, type of radiation, limits of occupancy, and similar precautionary information, must not be superimposed on the symbol. The current symbol had its beginning at the University of California Radiation Laboratory in 1946. The design finally chosen then was an upside-down version of the present symbol.

Magenta was selected as the color for the early symbol, since its cost limited widespread use for other purposes. Light blue was picked as a background color, later being changed to attention-getting yellow. In 1953 the American Standards Association published American Standard Safety Color Code for Marking Physical Hazards and the Identification of Certain Equipment, Z53.1—1953. The reddish purple and yellow color scheme specified then is the same as the current radiation symbol standard.

The National Committee on Radiation Protection and Measurement has approved this standard, plus these governmental agencies: U.S. Atomic Energy Commission, U.S. Department of Defense, California Division of Industrial Safety, Colorado Department of Health, Connecticut Department of Health. Maine Department of Health, Massachusetts Department of Labor and Industry, Michigan Department of Health, Minnesota Department of Health, New York Department of Health, New York Department of Labor, Pennsylvania Department of Health, and the Texas Department of Health.

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WALTER P. ANDERSON, gauger, Producers Pipelines Ltd., Alida, Saskatchewan, Canada—asphyxiation. Certificate of Assistance to Vodan Kondro and Mathew Messer.

VOICE OF THE READER

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Misplaced Emphasis?

NEWARK, N. J. Your editorial, "Honey, You Take Me for Granted," in the March News was very good. However, I think you are placing the present-day emphasis for the prevention of accidents in the wrong place.

It certainly is true that the greatest strides in cutting down accidents in the 20's, 30's and possibly the 40's were made by the installation of guards. Many of these guards actually prevented the accidents; others, such as safety shoes, goggles, and hard hats, prevented or lessened the injury after the accident occurred.

In the early days of the safety movement, little was known about the fundamentals of accident prevention. Guards did a big job in cutting down accidents at that time because plenty of accidents were occurring in most industries. It is relatively easy to make a good showing when the accident situation is bad.

Since those early days, a lot of fundamental research has been done by Heinrich and published in his book, *Industrial Accident Prevention*, published in 1931 and now in its fourth edition.

After almost 30 years many people in safety work are still not using these fundamentals effectively. Too many safety specialists are spending too much time trying to find out how accidents occur and too little in trying to prevent accidents before they occur.

I believe it is necessary to take this fundamental approach at this time if the safety movement is to make further advances. Accordingly, the title "Honey, You Take Me for Granted," should really apply to the human relations angle of safety, rather than being applied to the "guarditeering" stage which was very effective 20 or 30 years ago.

What good are all the guards and even Geiger counters if workers either do not use them or use them incorrectly? Guards and other devices are important, but they alone do not prevent most of the accidents. Why not give more attention to the fundamentals of accident prevention in the future?

—G. W. BOWER, Senior Engineer, Public Service Electric and Gas

Glasses for the Job

-From page 30

portant for safety when climbing ladders, handling materials, or operating fast-moving machinery. Also, the visual span required will affect the prescription, particularly as to size and placement of bifocal segments.

Eye protection standards.
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ough studies of eye hazards of various jobs and established standards of protection in terms of frame type, lens density, etc. If sideshields are indicated, the greater distance of the lens from the cornea must be taken into account in the prescription. Large eye sizes often required for wide range protection must also be given consideration if any decentration is specified.

6. Glare and radiation. For certain classes of work, such as heat treating, furnace or forge work and welding, absorptive lenses are required. Some types of lenses can provide protection against impact as well as harmful rays. The employee's personal sensitivity to glare, as well as the exposure, should be taken into consideration. in selecting the shade of lens.

Ownership of glasses. Safety prescription glasses, especially those prescribed for special job needs, are actually tools for work. Many companies do not allow them to be taken off company property. This insures their being on hand for use on the job and prolongs their life.

While eyes are exposed to many hazards off the job and protection after hours should be encouraged, the correction may be unsuited to the individual's personal activities.

Who pays? Two items of expense are involved—the refractionist's fee and the cost of corrective glasses. In some plants management pays the entire cost; in others it is shared by the company and the employee. Few companies now expect the employee to pay the whole cost of services and glasses. When the company pays the entire cost, it is in position to insist that the glasses be worn on the job.

Dispensing. Most industrial concerns direct the optical laboratory to deliver prescription safety glasses directly to the ophthalmic specialist who checks and verifies them and fits them to the individual.

Much of the value of a corrective device depends on accurate compounding and precise fitting. The employee will wear his glasses more willingly and consistently when he realizes they have been scientifically determined for his specific job requirements and fitted and serviced professionally.



STOP FIRES BEFORE THEY START

Complete line includes approved signs for every purpose, indoors or outdoors. Two gauges of steel available, with baked enamel or porcela namel finish. Send today for catalog and prices.

DANGER) EXPLOSIVES

CAUTION

FIRE ESCAPE NOTICE

DANGER

NO SMOKING IN THIS ROOM OPEN LIGHTS AT ANY TIME

STANDARD SIGNS INCORPORATED

3190 EAST 65th STREET CLEVELAND 27, OHIO

LADDER SAFETY DEVICE LOCKS-IN-A-NOTCH



Prevents death and injuries from falling.

If climber starts fall, device locks in a deep notch on carrier rail and limits fall to approximately 6 inches — distance between notches.

LOCKS AUTOMATICALLY and INSTANTLY—HOLDS SECURELY

Will catch and hold workman if he starts to fall, even if unconscious. Cannot slip on down ladder. Requires no attention from climber; he climbs in normal manner. Inexpensive. Easy to install; 3 men can clamp it to ordinary ladder in few hours. Clamps to any rung ladder, peg ladder, pole or framework. No welding or cutting. Notched rail hot-dipped galvanized. Entire equipment rust and corrosion proof. Can be kept free of ice by applying heat inside the carrier rail. In use approx. II years. Approved by Safety Engineers and Govt. Agencies throughout country. Patented. Manufactured

> SAFETY TOWER LADDER CO. Burbank Blvd. P.O. BOE BURBANK CALIFORNIA

Circle Item No. 73-Reader Service Card National Safety News, June, 1960 -From page 34

- 3. More power is available on short notice to drive the more powerful machines needed today.
- 4. The manufacturing cycle is shortened since plug-in outlets are made available where needed. Each machine can be used in its best loca-
- 5. There is a minimum of down time when modern means are provided for restoring service quickly in the event of a power break. In many plants that do not have unit substations, the service comes in through a transformer in a remote location or mounted on a pole. When there is a blown fuse or a tripped main circuit breaker, it is necessary to call the service department of the power utility; meanwhile, the plant may stand idle for an hour or more. With a properly designed unit substation, the main fuse or circuit breaker can be serviced quickly by a plant electrician.

Safe operation. The safety engineer is concerned chiefly with the incoming line section, usually called

the "primary voltage" section. It is in this and the transformer sections that the higher voltage is applied. Servicing of the transformer presents relatively few safety problems. When the transformer needs servicing or inspection, the primary interrupting device may be opened.

With the low-voltage switchgear section of the unit substation, there are several safety factors to be considered. However, these are no different from those in other parts of the electrical system.

The major hazard in substation operation up to now has been the necessity for the maintenance electrician to reach into a cubicle in which, even though the primary switch has been opened, there still are parts connected to a relatively high-voltage line. A new type of interrupter switch, recently installed as the primary interrupter of a large metal-working plant, has been designed to solve this problem.

In this interrupter, the switch and fuse assembly is mounted on a draw-out truck, as shown in the accompanying illustrations.

The entire switch and fuse assembly becomes dead before the truck has moved fractionally from the cubicle.

The truck is rolled manually out on the floor, and there the switch may be inspected, re-fused, or otherwise serviced, removed from possible contact with a live part. It is not necessary for the operator to reach into a cubicle in which, even though the main switch or circuit breaker is open, there are some hot parts.

After servicing, the above steps are reversed and the switch is back in business. The entire operation of replacing fuses and reclosing the circuit can be done in three minutes by one man. This time can be cut materially by providing a spare truck-mounted switch and fuse unit.

As with all properly designed equipment, the draw-out switch is of dead-front construction. It complies with applicable standards of the National Electrical Manufacturers Association, National Electrical Code, Underwriters' Laboratories, and with federal specifications.

The second basic requirement for safe operation-instant safe interruption of fault currents-is taken care of through modern currentlimiting fuses.





GETS-A-LITE GUARD and GUIDE Quickly and Easily Installed by Anyone-No Tools Neededl

- Simply slip GETS-A-LITE GUARD AND GUIDE over the fixture, as illustrated.
- Made of indestructible spring steel wire. Nothing to break, get out of order or replace. Will last indefi-nitely.
- Once installed, GETS-A-LITE GUARD AND GUIDE is NEVER
- Nothing to unlock, fuss with or lock, when changing lamps.
- GETS-A-LITE GUARD AND GUIDE actually steers lamp into socket enabling maintenance man to change lamp in 10 seconds!
- Available for 40 watt and 100 watt fluorescent lamps.

GETS-A-LITE CO.—Dept. NSN-560 3865 N. Milwaukee Ave., Chicago 41, III.



Storage Battery Always Fully Charged-Built-in Charge Just plug in a BIG BEAM Emergency Light and rest assured that when regular lights fail, your plant or building will be protected automatically with hours of bright, SAFE illumination. Variety of models available

HAND LAMPS . FLARES Wide range of hand lamps and flares also available. including Explosion-Proof Hand Lantern, Model 287EX for use in Hazardous Locations, Class 1, Group D, Approved by Underwriters' Laboratories.

Write for Bulletin on Complete Big Beam Line

U-C-LITE MFG. CO. 1027 W. Hubbard St. Chicago 22, III.

Caesda: Bernard Marks & Co., Ltd., 70 Claremont St., Toronto 3, Orf. Circle Item No. 74-Reader Service Card National Safety News, June, 1960



Circle Item No. 76-Reader Service Card



Wear regular KEY-BAK Key
Reel on your belt. Pocket
watch size, high-polished
chrome finish. Swedish clock
spring reels in 24" long
stainless-steel chain. NO
DANGEROUS, DANGLING
CHAINS TO CATCH IN MACHINERY AND CAUSE ACCIDENTS. For your shop and
maintenance-men. Order now!

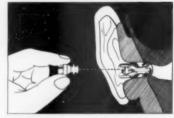
ORDER FROM YOUR JOBBER - OR WRITE DIRECT!

WEST OF MISSISSIPPI Lummis Mfg. Co. 2242 E. Foothill Blvd. Pasadena, Calif. EAST OF MISSISSIPPI CTL Company 1710 W. Stewart Ave. Wausau, Wiscensin

OVER TWO MILLION KEY-BAKS SOLD!

HARMFUL Effects of NOISE to the EAR DRUMS ELIMINATED by

Lee Sonic EAR-VALVS



A FREE 30 Second Demonstration will PROVE this BEYOND QUESTION. We GUARANTEE THAT! Remember they are NOT EAR

PLUGS! They are scientifically developed sound controls that protect the ear drum without interfering with normal conversation or sound. We'll gladly send you a pair for 30 day trial with no abligation to purchase. THEN you will find out why they are recommended and used wherever NOISE is a HAZARD and a deterrent to normal production. Send for a demonstration pair TODAY on your company letterhead.

SIGMA ENGINEERING COMPANY 1491 Vine St., Dept. F3, Los Angeles 28, Cal.

Calendar Contest For March



Thornton Bauer of The Nelson Co. Inc., Louisville, Ky., won the \$100 first prize in the National Safety Council's "Safety Saying" contest with this line:

"Learned TWO-getherness safely lifts WEIGHT!"

The contest appears monthly on the back pages of the Council's calendar. The theme for the March contest was "Get Help With a Heavy Load."

Second prize of \$50 went to Jay Wrinkle, American Zinc Co. of Tennessee, Mascot, Tenn. This entry was:

"Taking ONE FOR THE LOAD sure tempts fate!"

L. A. Hughes (Individual Member), Tupelo, Miss., won third prize of \$25 for this line:

"A 'we' bit of help lightens the weight."

The 30 winners of \$5 prizes are:

W. R. Coulson, Steep Rock Iron Mines, Atikokan, Ont., Canada.

Mrs. Edward Pickett (Individual Member), Madisonville, Ky.

William E. Rush, Iowa Southern Utilities, Corydon, Iowa.

Mrs. V. J. Green, The Standard Register Co., Dayton, Ohio.

R. W. Brickey, J. & L. Construction Co., Indianapolis, Ind.

Norbert Witkowski, Ogden Transfer & Storage Co., Ogden, Utah.

Lester Weintraub, The Borden Company, San Francisco, Calif.

Mrs. Lorraine McWilliams (Individual Member), Knoxville, Tenn.

Mrs. Dewey McDonald, Dallas Union Securities Co., Inc., Dallas, Tex.

Mrs. A. E. Wiedenhoeft (Individual Member), Columbia City, Ind.

Mrs. H. S. Goldberg, Jr., Stewart Title Guaranty Company, Dallas, Tex. Mrs. Pauline Vincent (Individual

Member), Fresno, Calif.

James Mathews, Kaiser Steel Corp.,

Fontana, Calif.

Mrs. Franklin Johnson (Individual

Member), Kansas City, Mo.

Mrs. John Schlingloff (Individual
Member), Wilmington, Calif.

W. Arthur Hutton, John Deere Des Moines Works, Des Moines, Iowa.

Miss Marie Bowser (Individual Member), Sheboygan, Wis.

Mrs. Lulu Pierce (Individual Member), Duluth, Minn.

Mrs. James W. Boyatt, Hughes Aircraft Company, Fullerton, Calif.

Miss Margaret H. Durham, Sinclair Oil and Gas Co., Tulsa, Okla.

Mrs. Robert Cree (Individual Member), West Chester, Pa.

Mrs. Olga Jason (Individual Member), New Bedford, Mass.

Felix Townrow, Kaiser Steel Corp., Fontana, Calif.

Frank Knapp, John Knapp Sons Foundry Co., Akron, Ohio.

Lem Levinson, Bethlehem Steel Co., Long Beach, Calif.

Mrs. Albert Rehder (Individual Member), Hawarden, Iowa.

Mrs. Eleanora M. Kizer, U.S. Rubber Co., Ball-Band Plant, Mishawaka, Ind

Mrs. E. A. Wright (Individual Member), Seattle, Wash.

Mrs. R. J. Pritchett (Individual Member), Denver, Colo.

Miss Emma Karchnak, Bethlehem Steel Co., Johnstown, Pa.

TWO MEDICALLY APPROVED



HAND CREAMS

FOR INDUSTRIAL WORKERS

(1) PH7 Protective Cream is nongreasy, non irritating and nonsensitizing to the skin.

sensitizing to the skin.

Applied before starting work, one application is effective for three to four hours against the following irritants: Lubricating oils, cutting compounds, synthetic resins, solvents, printing links, paint, fibre glass, iron dust and chlorinated naphthalene.

chlorinated naphthalene.

(2) Work Cream is a soft, white hand cream which is applied after exposure to degreasing materials and at the end of the day's work to help keep the hands in good condition. Workers using solvents and other strongly degreasing materials will find Work Cream helpful in preventing roughness, dryness, chapping and cracking of the skin.

Can type pump disenses and

Cap type pump disenser available for use with one pound jar.

Write for full details.

LESTER L. BROSSARD CO. 540 N. Michigan Ave., Chicago 11, III.

New SAFETY EQUIPMENT

Product announcements in this section are reviewed for compliance with the advertising policy of the NATIONAL SAFETY NEWS. Inclusion should not, however, be construed as endorsement or approval by the National Safety Council.





Sling Hook

Tayco Sling Hook No. A-75 can be used with 1¼ and 1¾ in. diameter alloy chain. The hook is drop-forged from alloy steel and heat-treated. Its patented I-beam type design provides strength and a

safe gripping area for the hooker.

Engineers report the hook will not bend, even when the load is applied at the point, providing that the working load limit (of the chain for which it is designed) is not exceeded. Side bending is reduced.

Resistance to shock, work-hardness and grain growth is reportedly increased. Other features include a larger eye to accommodate shackle pins and wire rope thimbles, and a wider, deeper throat.

S. G. Taylor Chain Co., P. O. Box 509, Hammond, Ind. (Item 301)



Ventilating Heater For Underground

A ventilating heater for manhole and underground use is the 1960 MoPeCo Model PE-G, a 78-lb portable ventilator and heater with attached 300 watt generator for electric light or soldering iron.

A waterproof weatherguard protects the electric outlets on the generator. The case has rounded corners for safety and streamlining. The stainless steel heat exchanger is fabricated with continuous welded seam. The unit has increased air volume.

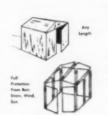
The Briggs & Stratton engine has been converted to propane carburetion. The MoPeCo Model PE-G delivers from 300 to 800 cu. ft. per minute of fresh

heated air. This heated air passes through the heat exchanger and products of combustion pass into the atmosphere through the burner exhaust so that fresh, heated air is forced into the manhole area.

The PE-G is equipped with a forced draft burner which has an input rating of from 10,000 to 45,000 BTU's per minute with a 98-degree temperature rise. It is designed for year-around ventilation, delivering heated fresh air in winter and fresh air only in summer, when operated as a blower.

A 62-lb Model PE is identical, less the generator. Ventilating blowers are also available.

Morrison-Pelsue Co., 2001 South Bannock St., Denver, Colo. (Item 302)





Screens, Room Dividers

A Porto-Screen Series "60" has been announced. When assembled, these make a

"Handi-Hut" for work shelter and storage use, as well as screens and room dividers. A 6 x 6 x 7-ft. hut can be assembled with eight standard frames to form the side walls and two to form the top. Standard clamp hinges permit panels to be hinged for doors. Assembly is reported fast with clamp hinges. These units can be joined to make portable shelters to protect personnel from bad weather.

Porto-Screen panels make wind screens, welding shields, or portable room dividers. The assembly stores compactly.

Handi-Huts can be used to protect equipment from weather or pilfering . . . to keep building materials from weather damage . . . to keep personnel comfortable during emergency repairs in cold, windy, rainy weather. Or they can also be used as temporary offices on construction jobs . . . and with the top only as protection against the sun. Porto Screen frames are made of steel tubing panels with U.L.-approved fabric curtains.

Frommelt Industries, 290 Main St., Dubuque, Iowa, (Item 303)



Lightweight Face Shield

A lightweight face shield—the Spartan, Series 6400—polyethylene headgear, an elastic headband and window installation is available.

The adjustable elastic headband permits fit on any size head and can be worn low on head, if required. This headgear has a pin lock adjust-

ment on the top band.

The fiber band has three positive snap fasteners to hold clear or green acetate windows to fiber spark guard, permitting installation and replacement of windows. Windows are in 4, 6 and 8-in. lengths and .020 and .040 thickness. These are packaged individually in polyethylene bags.

Welsh Mfg. Co., 11 Magnolia St., Providence 9, R. I. (Item 304)



Filmbadge Service

Du Pont-type 552 Dosimeter badges are used, containing one sentitive and one insen-

sitive film, covering a range from 1 mr to 100r X-rays, 50 mrem (mullti-roentgen-equivalent-man) to 20 rem for beta particles and from 20 mr to 60r gamma radiation.

Eastman type A film is used in neutron badges, recording proton recoil tracks from about 300 kev to 20 mev. 25 fields of 0.03 sq. mm. each are checked under a high-powered microscope.

St. John X-Ray Laboratory, Califon, N. J. (Item 305)



Heavy-Duty Switch Line

The Force Control Switch Line can be adapted to heavy-duty service, or continuous outdoor application. The new unit incorporates attachment eye and yoke

integrally machined as part of the deflection beam.

In operation, the U-shaped beam moves outwardly. Switches contained in the housing at center are actuated in various preset load points by recessed adjustment screws in the lower half of the beam.

Micro-switches are enclosed in a dust and moistureproof case fitted with an aircraft type electric coupling. Rain, dirt, moisture and dust are sealed off, and applications in varying weather or grimy, contaminated atmospheres can be made.

These switches include an aircraft alloy steel safety bolt across the end of the deflection beam and have a 4-1 safety factor. They are adaptable to overload prevention on hoists or cranes, remote indications, operation of warning signals, and provide automation of any applications involving force or weight.

As many as four micro-switches, operating separately or at the same load point, can be furnished with this device and will be preset to specifications. Numerous capacities from 5 to 50,000 lbs. are standard. Compression and tensile models are available.

W. C. Dillon & Co., Inc., 14620 Keswick St., Van Nuys, Calif. (Item 306)



Rayon Cord Strapping

Avistrap cord strapping is made of rayon cord. This strapping weighs ½ to 1/7 as much as steel strapping of comparable strength.

The coils weigh approximately 21 lbs., with disposable spool, in a yardage

equal to a 100 lb. coil of steel strap. There is no unwrapping or complicated changing of reels. The empty spool may be thrown away and the next strapping job started immediately.

Avistrap is shipped on pallets in single-coil or four-coil cartons. A 1,000-yd. spool of heavy-duty Avistrap measures 13½ in. in diameter and is 6 in. wide. It weighs one-fifth of a comparable amount of steel strap.

Industrial Packaging Dept., American Viscose Corp., 1617 Pennsylvania Blvd., Philadelphia 3, Pa. (Item 307)



Disposable Ear Plugs

A disposable antinoise ear plug has been developed. Made of waxes and cotton,

the plug is soft, pliable, and can be molded to fit the ear. These plugs provide closure of the ear canal and reduce noise levels as much as 30 db, depending on the source.

Designed for workers exposed to loud, temporary or sustained noises, such as metal workers, drilling, boiler making, and riveting, the plugs are comfortable to wear and are sanitary. They can be thrown away after each use.

These plugs are packed in individual pairs or may be obtained in 200 unit bulk packages.

Frontier Industrial Products Co., 13819 Edwin St., Van Nuys, Calif. (Item 308)



Plastic Coating For Work Gloves

A two-piece liner, eliminating seams from the work area, reportedly makes the "Monkey Grip" work glove tougher and longer wearing.

This vinyl plastic glove provides dry grip for handling

abrasive materials. It is available in coated gauntlets, palm or coated knitwrists, and several types with triple-thick palms.

Fully-coated styles are guaranteed liquid-proof and are useful handling oils, acids, caustics and alcohols. All styles are made with curved, preflexed fingers and wing thumb for comfortable fit.

Edmont, Inc., Walnut St., Coshocton, Ohio, (Item 309)

Tape Player, Filmstrip Projector

The AV Tutor is a dual track tape player and automatic filmstrip projector combination for selling products or services. Size for the cartridge type is 14 x 15 x 8½ and reel type is 14 x 18 x 8½. It weighs 28 lbs. Its light output is 300 watts. Its lens is 3 in. f3.0 standard, but other focal lengths are available.

Cooling is accomplished by a blower (amplifier and projector). The unit's speed is 3-3/4 Standard (71/2 ips available.) The speaker is 1-5 in. with a low resonance cone. Wow and flutter are less than .25 per cent at 71/2 ips.

Frequency response is 3 db-50—12,000 cps at 7½ ips. The signal-to-noise ratio is at least 47 db at 7½ ips.

LaBelle Industries, Inc., Oconomowoc, Wis., (Item 310)



Fluorescent Spray For Safety Mark

High-visibility fluorescent enamel for emergency safety marking may now be applied with finger-tip spray dispenser.

Known as the "Jet-Pak" the aerosol sprayer consists of three elements: propellent,

plastic spray head, and a glass jar which holds the thinned "Pyralux" fluorescent enamel.

Du Pont fluorescent colors—yellow, vermillion, orange, and red—can be used. It is useful for stenciling of signs on white cardboard.

These fluorescent enamels reportedly reflect up to four times as much light energy as conventional colors of the same hue. They appear to increase in brilliance in poor light. Originally used in aircraft, they are now used at military installations.

Spray On Products Co., Cleveland, Ohio (Item 311)



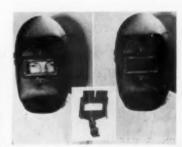
A series of double green strip, ACCOregistered VHS strand-laid wire rope slings has been fabricated from a uniform analysis, high carbon steel and processed to give the characteristics needed in a heavy-duty wire rope.

These slings reportedly are at least 15 per cent stronger than the highest normal grades of improved flow steel slings. The higher tensile strength of VHS is said to result in a strong product without increasing rope diameters.

VHS rope slings keep their shape under pressure and withstand shock and abrasion. Because of preforming, they cannot become hide bound or lose flexibility.

Slings in this series are equipped with Duoloc wire rope endings for safety in use and handling. These streamlined endings don't damage the wire rope or unbalance and destroy the rope structure. Duoloc permits the use of preformed wire ropes with independent wire rope centers, retards fatigue, absorbs vibration, and is locked for the life of the wire rope.

Having a factor of safety of approximately 5:1, these ACCO-registered strand-laid wire rope slings are available in 20 diameters, ranging from ½ to 3 in. Vertical lifting capacity of the smallest sling is 1,350 lb., while the largest is rated at 166,000 lb. These slings can also be arranged as chockers, baskets or bridle assemblies. American Chain & Cable Co., Inc., 929 Connecticut Ave., Bridgeport 2, Conn. (Item 312)



Jaw Lifts Guard on Welder's Helmet

A welder's helmet is available that eliminates lifting of the helmet from the face when the welder inspects

his work. The protective eye guard lifts from view with the workman's jaw motion, leaving clear plastic area for viewing.

Of standard fiber construction, the helmet is adjustable. The welder may work in restricted areas without creating hazards to himself or others by continually raising his helmet as he works. The drag bead will be eliminated, as well as scoring and mutilation by misguided arcs.

Auto View Welding Helmet Co., P. O. Box 917, Santa Monica, Calif. (Item 313)



Job Standards Templets

Job standards templets, used with the T/O Vision Tester, permit the user to grade instantly each em-

ployee's visual performance, in relation to the visual needs of six principal job categories.

The set of templets is in a plastic binder with simple instructions for their use. The six categories covered are: clerical, inspection, mobile, machine, unskilled, and skilled workers.

Each templet is a clear acetate overlay. The test record form furnished with the T/O Vision Tester, when complete with results of the employee's test, is placed under the templet. One sees whether the employee has passed or failed to meet the visual standards for his particular work.

Titmus Optical Co., Box 191, Petersburgh, Va. (Item 314)

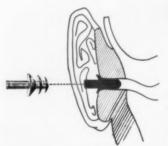
Chlorinated Solvent

Chlorothene NU solvent is said by its makers to be one of the least toxic of the common chlorinated solvents. It has no flash or fire point, its flammability characteristics being compared to trichloroethylene, and a maximum allowable vapor concentration of 500 parts per million.

This solvent can be recovered by standard distillation equipment. Some of this product's uses are: spray cleaning of electrical equipment, as a vapor pressure depressant in aerosols, as an adhesive activator in assembly operations, for cold cleaning, as a carrier of dry lubricants such as graphite, as a fabric cleaner and as an additive to cutting oils.

Chlorothene NU can be recovered without need of stainless steel or Heresitee-lined equipment. This feature reportedly increases the solvent's desirability for use in industrial cold cleaning.

Dow Chemical Co., Abbot Road Bldg., Midland, Mich. (Item 315)



Silicone Rubber Ear Plugs

Com-Fit ear plugs are molded of silicone rubber. They are reportedly durable and pliable, non-toxic, non-allergenic, re-

sistant to ear wax and skin oils, and may be boiled and sterilized for cleanliness and interchange among the wearers.

Made with a triple flange to guarantee sealing of the ear canal, these plugs have one size designed to fit all ear openings.

Laboratory tests showed white noise attenuation of these plugs equalled a 36.3 db. The frequency-vs-attenuation indicated a maximum attenuation of 63 db. at a frequency of 4,000 cps with equally impressive attenuation at other levels.

These plugs are packaged in plastic carrying cases. Sigma Engineering Co., 1491 Vine St., Los Angeles 28, Calif. (Item 316)



Apron with Safety Slogan

A transparent vinylite apron recently introduced carries a safety slogan stenciled across the bib in dark green letters: "Think Safety—Work Safely."

The apron is said to be big enough (33 x 40 in.) to keep workers safe and clothes clean on minor assembly jobs or where minor liquid hazards exist.

Standard Safety Equipment Co., 431 N. Quentin Road, Palatine, III. (Item 317)



Lightweight Clothing For Welders

Singer Blackline reportedly offers protection plus comfort for inert

gas arc welding. It can be used with safety where the danger of heat, flame or solder splashes are present.

Made of lightweight flame-resistant, finely woven cotton twill cloth in black, it is available in capes with bib, bib aprons and full jackets.

Singer Glove Mfg. Co., 860 Weed St., Chicago 22, III. (Item 318)



"Short Leg" Structural Clamp

This material handling device, the Merrill two-ton structural clamp, has been designed with this "short leg" for junior-size beams. The use of this clamp reduces time lost in slinging, attaching and releasing work during moving.

Drop-forged, they are lightweight in relation to their capacity. These clamps have a grip range 0-1 in., are 100 proof tested at 6 tons and have a safety factor of 5 to 1.

Merrill Brothers, 56-28 Arnold Ave., Maspeth, N. Y. (Item 319)

Controlled Pouring



Kontrol-Karrier, Model #185, is designed to give controlled pouring at any height or location in the plant on standard 55-gal. drums. Hooked to a monorail hoist, crane or chain block or saddled to a drum,

the unit can be taken to any desired spot.

Tipping is performed by one man on the floor handling the chain loop extending down from the carrier. The standard unit includes 6-ft. chain drop or 12-ft. over-all length. The carrier will handle 800 lbs. liquid or 500 lbs. dry loads. Special saddles are available for fiber drums. Drum diameter and length must be specified on these containers.

Morse Mfg. Co., Inc., 727 W. Manlius St., E. Syracuse, N. Y. (Item 320)

Plastic Bowl Protector

"Guard-All" is a protector for the plastic bowls of pneumatic filters and lubricators. When bowl explosions occur, personal injuries can be serious. Causes

of bowl fracture can be fatigue, accidental shattering, flaw in the plastic, shock loads due to misapplication, walls worn thin by abrasion, or chemical attack by fumes or cleaners.

The product's wire cage restrains flying particles while retaining visibility. Attachment to pipe line is by movable hooks, adjustable for proper height. Explosion tests show the necessity for spacing between bowl and guard. Three sizes allow space to give protection and fit bowls from ½ through 1-in.

C. W. Morris Co., 10628 Cloverdale, Detroit 4, Mich. (Item 321)



Lightweight Swing Stage Hoisting Units

Lightweight swing

stage hoisting units can be adapted to scaffolding climber basket or bosun's chair operation. The line includes four models—two electric-powered, one pneumatic and one hand operated.

The hand and air powered models have a capacity of 1,000 lbs. The electric models, which can be adapted to 115 or 230 volt power, have a 600-lb. capacity with a ½-hp. motor or a 900-lb. capacity with a ¾-hp. motor. The pneumatic and electric models can be raised or lowered at the rate of 18 feet per minute.

The units feature five safety devices, two incorporated in the control mechanism—a self-actuating cam lock and a self-actuating pawl lock which automatically engage the cable and drive gear in event of slippage. The lift is equipped with a positive-acting disc-type brake and a spring-loaded power control.

Other features include a cable guide for alignment of the cable on the drum, a 180 to 1 worm gear ratio, a manual control for lowering the air or electric units in event of a power failure and an overload microswitch which prevents use of the electric models in excess of rated capacity.

Ohio Hoist Mfg. Co., Lisbon, Ohio (Item 322)



Anti-Foggant Cleaner

Eyes Right is an antifoggant and cleaner which controls surface tension, freeing and floating trapped dirt to the surface. This product contains no glycerine or

silicone and does not smear.

It is packaged in a wall cabinet which contains a pint-size spray top bottle and 750 wiping tissues. It comes separately in lightweight, non-breakable polyethylene 1-gal. plastic bottles and in 4-oz. squeeze bottles

International Latex Corp., 350 Fifth Avenue, New York City, N. Y. (Item 323)



Safety Switch Locks Off Power

A safety switch, Pow-R-Off, prevents injuries to machine operators and avoids damage to machines.

This safety device may be attached to any machine tool using a key-operated chuck. The unit provides protection to operator and

machine during makeready by locking off the flow of electric current while the chuck key is in use.

The chuck key is attached permanently to a cable which is spring-wound on a drum. When the key is pulled out for use, a switch is tripped, shutting off the current.

When the key is no longer in use, the cable is retracted onto the drum by the spring action, and the switch turns the current on again.

HB Research & Development Co., 117191/4 E. Washington Blvd., Whttier, Calif. (Item 324)

Charleston Rubber Co.

Gale M. Hallett is now sales manager of Charleston Rubber Co., Charleston, S. C. Mr. Hallett will continue also as advertising director. As sales manager, Mr. Hallett will be in charge of developing and

G. M. Hallett directing sales of Charco products in this and foreign countries.

American Viscose Corp.

An Industrial Packaging Department has been established in American Viscose Corp., Philadelphia. Avistrap Cord Strapping is the first product to be handled by the new department.

Robert K. Scharff has been named general manager of sales for Avistrap Cord Strapping, and Thomas F. Brastow is manufacturing manager. George J. Alles will serve as general manager of the new department.

Additional personnel appointments for Avistrap Cord Strapping are: William M. Carney, Jr.—assistant general manager of sales; James E. Talbot—product manager; Donald R. Hager-Chicago District sales manager; Richard F. Mueller-New Orleans District sales manager; Dale S. Hodges-New York District sales manager; Troy D. Christopher-Columbus, Ohio, District sales manager; David S. Collingwood-sales representative; and George H. Karpus-sales correspondent.

E. Roper

Sellstrom Mfg. Co.

Earl Roper has been appointed southern factory sales representative for Sellstrom Manufacturing Co., Palatine, Ill., manufacturers of welding and safety equipment. He will cover Alabama, Florida, Geor-

gia, Mississippi, North and South Carolina and Ten-

Richard W. Whitton, West Coast sales representative for the firm, died January 20. He was 50.

Born in South Dakota, Mr. Whitton had been with the Sellstrom firm since 1956, and prior to that had sold the Sellstrom line for a Los Angeles manufacturer's

A former resident of Huntington Park, Calif., Mr. Whitton is survived by his wife and two sons.

Floridin Company

The fiftieth anniversary of the Floridin Company was observed with a Floridin Week celebration in the firm's headquarters city of Tallahassee.

Sarole Inc.

A free course on Teaching Industrial First Aid is now available, including all phases of manual and automatic resuscitation, proper technique in splinting, and proper technique of transportation of the injured. Contact Sarole, Inc., 228 No. Wood Ave., Linden, N.J.



A. E. Hendershot

Goier Inc.

Alfred E. "Al" Hendershot is now assistant sales manager of Gojer, Inc., Akron, Ohio. Mr. Hendershot will direct the sales of Go-Jo Creme Hand Cleaner and Goier, Inc.'s line of handcleaning products and accessories.

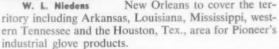
Willson Products

Willson Products will conduct a safety clinic at the firm's home plant in Reading, Pa., the first two weeks in May. The clinic will provide Willson safety counselor-representatives with product information and sales data to enable them to devise, strengthen and apply voluntary, cooperative means of reducing industrial accidents. Willson plans several of these clinics each



The Pioneer Rubber Co.

Wayne L. Niedens has been appointed sales representative by The Pioneer Rubber Co. of Willard, Ohio, for the company's Texas subsidiary. He will make his headquarters in New Orleans to cover the ter-





H. C. Mesch, E. F. Shipman, F. L. Bower

Industrial Products Company has acquired the Guardian Safety Equip-

Industrial Products Co.

ment Company, Orange, N. J. In addition to staff personnel, Guardian partners Harold C. Mesch and Frank L. Bower will continue in sales executive capacities as vice-presidents of the New Jersey operation.



TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.

Fire Prevention on Marine Docks

National Foam System, Inc., West Chester, Pa., announces an illustrated manual on "Fire Hazards in Industry." This 12-page guide offers technical information on means of combating fire on marine docks. Among subjects covered are portable extinguishers, fire hydrant systems, water sprinkler systems, and methods of using carbon dioxide and dry chemical, as well as foam. Three techniques of foam application are discussed: portable nozzles, monitor nozzles, and fixed outlets. Schematic drawings of typical installations are included.

For more details circle No. 400 on enclosed return postal card.

Materials Handling Devices

Merrill Brothers, Artic St., Maspeth, N. Y., has made available Catalog C-2, describing and illustrating their line of material handling devices. Featured is the Universal Joint Clamp. These clamps are primarily designed for use where unusual side strains are brought to bear on shackles in rolling drums or tanks while welding. Drop forged and heat treated, this device has a safety factor of 5 and is available in six standard sizes.

For more details circle No. 401 on enclosed return postal card.

First Aid Kit

A. E. Halperin Co., Inc., 75-87 Northampton St., Boston, Mass., has released an illustrated 4-page brochure describing their industrial first aid kit. This publication includes dimensions and weights, and is intended as a reference for the style of industrial kit desired by an industrial plant.

For more details circle No. 402 on enclosed return postal card.

Safety Enclosures

Bulletin A-14 describes high-visibility safety enclosures for safe handling of microbiological and radioactive materials. Maximum visibility of the area is provided by an all-glass front panel that slopes back at a 15-degree angle, S. Blickman, Inc., 8400 Gregory Ave., Weehawken,

For more details circle No. 403 on enclosed return postal card.

Paint Your Way To Fire Safety

Bulletin #100, "Paint Your Way To Fire Safety" explains how fire-retardant paint works and how it is applied in industrial, commercial and institutional buildings to improve personal safety and reduce potential fire damage. The significance of extra time at the start of a fire is related to the protective action of fire-retardant paint on combustible building materials and structural metal. Included is a discussion of relative costs of materials and labor in applying conventional paints and fire-retardant paint, as well as an explanation of Underwriters' Laboratories flame-spread ratings. Albi Mfg. Co., Inc., Rockville, Conn.

For more details circle No. 404 on enclosed return postal card.

Remote Area Monitoring Systems

An illustrated brochure on the company's remote area monitoring systems is announced by The Victoreen Instrument Co., 5806 Hugh Ave., Cleveland 3, Ohio. The bulletin outlines applications and performance of the basic system components. Auxiliary units such as sensing elements and remote alarms are covered. Victoreen remote area monitoring equipment is used for source position indication, process control, door interlock actuation, and fallout and disaster control in civil defense.

For more details circle No. 405 on enclosed return postal card.

RJ Dust Filter

Bulletin G-30 describes the "RJ" dust filter which, with three moving parts, filters and recovers dust from airstreams loaded with fine, coarse, abrasive, or non-abrasive dusts. Included is the method the "RJ" uses for maintaining prossity of the filtering media. Specifications and dimensions of single and multiple unit installations are given for standard fan locations and reverse air pressure blowers. The Day Sales Co., 810 Third Ave., N. W., Minneapolis 13, Minn.

For more details circle No. 406 on enclosed return postal card.

Industrial Lighting Units

The 1960 edition of the RLM Standard Specifications for Industrial Lighting Units includes three specifications for 1500 ma units; D-4 fluorescent semi-direct medium high mounting, SD-3AL semi-direct aluminum and SD-3PE semi-direct porcelain enamel units. This 52-page book contains revisions of existing specifications, including high specifications for materials, specifications for aluminum reflectors, and provisions for inspection and testing. The RLM Standards Institute, Inc., 336 W. Madison St., Chicago 6.

For more details circle No. 407 on enclosed return postal card.

Industrial Noise Control

Literature published on products for industrial and office noise control is available from Industrial Acoustics Co., Inc., 341 Jackson Ave., New York 54. Products described cover such items as acoustic doors, telephone booths, noisy machinery enclosures (for factory or office), "Quiet" rooms and acoustic panels for fabrication of sound barriers, and sound isolation rooms.

For more details circle No. 408 on enclosed return postal card.

Material Handling Equipment

E. D. Bullard Company in its Catalog No. 60 has four major sections on safe material handling equipment and accessories. Section I includes information on type, size, and ordering requirements for Pin-Lok and Tip-Lok safety hooks for hoists, cranes, and pullers. Section II covers the high-voltage insulated tension link designed to protect hook tenders and riggers when a crane accidentally contacts high voltage lines, and low-voltage link to protect hoist motor and chain or wire rope during welding. Section III has specifications for the mechanical back-up alarms for trucks and fork lifts and the tractor alarm. Retracto auto safety belts and Tacco safety truck steps are covered in Section IV, E. D. Bullard Co., Sausalito, Calif.

For more details circle No. 409 on enclosed return postal card.

Fire Department Accessories

Machine Products Corp., 125 Hollier Ave., Dayton 3, Ohio, has made available a catalog describing and illustrating fire department accessories. Illustrated are nozzles, nozzle tips and hose cap, play pipes, safety belt, hatchets, indentification signals, and other accessories.

For more details circle No. 410 on enclosed return postal card.

Fire Control Chart

A two-color chart, explaining the three classes of fires and the approved portable extinguishers to be used on each, has been prepared by Walter Kidde & Co., Inc., 675 Main St., Belleville 9, N. J. The chart shows extinguishers and information, including ratings based on the new U. L. standards. An updated revision of an earlier chart used in training programs, "The ABC of Fires and Fire Protection" gives data about Class A, B, and C fires and extinguishers suitable or unsuitable for each class of fire.

For more details circle No. 411 on enclosed return postal card.

Relay Testers

Referring to standardization of tests and test equipment in relay testing, Multi-Amp Division, Multi-Amp Electronic Corp., Dept. RT., 465 Lehigh Ave., Union, N. J., has prepared a 48-page booklet, SB-RT-1, "Multi-Amp Universal Portable Test Units for Protective Relays." Presented are classification of relay tests, preparation for protective relay testing, reasons for an adequate testing and maintenance program, tips on selecting Multi-Amp relay test units, two charts—one on features and another on selection of testers, how the test units can aid in relay functioning.

For more details circle No. 412 on enclosed return postal card.

Automatic Fire Alarm

Two-color Bulletin No. 29 tells how the low cost, standard nonelectric, self-contained, U. L. listed automatic fire alarm provides fire detection and warning for homes, stores, schools, apartment buildings, and farm buildings. The automatic fire alarm is described as guaranteed, activated by Du Pont Freon and having the patented glass eye visual monitor, which assures the units are charged and ready for action, without the need of weighing to determine the level of Freon in the cylinder. The home unit is said to be self-contained, having no electricity, batteries, or outside source of power. The hornmounted device blasts at the location where the unit is hung, when activated by abnormal heat rise. Duration of the blast is 20 minutes. Two temperature ratings are available: 136F, for use where the average temperature does not exceed 150F. Standard Fire Alarm and Signal, Inc., 100 Old York Road, Jenkintown, Pa.

For more details circle No. 413 on enclosed return postal card.

Air Powered Hydraulic Dockboard Data

File Folder No. A.I.A. 35-I-141 describes, illustrates, gives specifications, installation diagrams, parts, and price list for Aero-Boards. This air-powered, hydraulic dockboard is designed for installation on truck loading docks in terminals, warehouses, manufacturing plants, and similar facilities. The folder contains air compressor charts and data, suggested construction details for cantilevered (bumper) docks, and construction details for fabricated frames for flush docks. Allied Products Div., Freightliner Corp., P. O. Box 3591, Portland 8. Ore.

For more details circle No. 414 on enclosed return postal card.

Industrial Fire Hose

E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington 98, Del., have released a technical bulletin, "Properties of Industrial Fire Hose Jacketed 100 Per Cent with Dacron." The bulletin gives casehistory material on performance of fire hose jacketed with Dacron polyester fiber at chemical and petroleum plants.

For more details circle No. 415 on enclosed return postal card.

Willson Plant Survey

Willson Products offers information on a safety plan, in which the costs of routine injuries, disabling injuries, and compensable accidents are summarized for eye, respiratory, and noise hazards. The total is related to what is needed for maximum worker protection and standardization of equipment for minimum inventory and optimum lower cost. This data and analysis are developed directly by the safety director and plant management. Willson

Products Div., Ray-O-Vac Co., 212 E. Washington Ave., Madison 10, Wis.

For more details circle No. 416 on enclosed return postal card.

Reduced Machine Shop Noise

Users and makers of machine tool equipment can reduce machine shop noise 83 to 88 per cent and can eliminate bar stock damage, according to "Noise Reduction and Bar Stock Protection with Byers PVC Stock Tubes," a case study published by A. M. Byers Co., Product Development Dept., Clark Building, Pittsburgh 22, Pa. The 8-page publication contains "before and after" results of an installation in which Byers PVC stock tubes replaced metal stock tubes on a 6-spindle automatic screw machine. Other case histories explain how machine clatter and stock damage are approached by using Byers stock tubes to line or replace metal tubes on automatic screw machines, hand screw machines, turret lathes, and engine lathes.

For more details circle No. 417 on enclosed return postal card.

Resuscitator-Demand Inhalator-Aspirator

Globe Industries, Inc., 125 Sunrise Place, Dayton 7, Ohio, announces marketing of the oxygen-supplied "Samaritan," a resuscitator-demand inhalator-aspirator, When used as an oxygen resuscitator, the device is not dependent on compressed oxygen as a source of power to operate a mechanical resuscitator valve. The product may be used as a mouth-to-mouth resuscitator for continuing assistance after the oxygen cylinder is depleted and if a spare oxygen cylinder is not available. The unit may be used as a demand inhalator for breathing patients, after they have been revived but must be continued on oxygen.

For more details circle No. 418 on enclosed return postal card.

First Aid Units

The M-S-A flip-top box for multiple-use first aid units is described in Bulletin No. 4041-8, issued by Mine Safety Appliances Co., 201 No. Braddock Ave., Pittsburgh 8, Pa. The illustrated release highlights construction features of the container, including resistance to tearing after frequent use, sealed-in protection against dust or grime, and convenience in extracting items. M-S-A first aid items in this package are listed as ammonia inhalants, iodine brushes, merthiolate swabs, waterproof adhesive bandages, 2-in. compress bandages, Foille liquid for burns in two sizes, and Foille ointment for burns.

For more details circle No. 419 on enclosed return postal card.

Rust Preventive Finishes

Master Bronze Powder Co. Inc., 538 W. State St., Calumet City, III., announces availability of their 16-page industrial catalog covering Derusto protective coatings, Galv-a-Grip, Derusto colored aluminum, New Derusto Minit-Finishes and Derusto chemical resistant and Hi-Heat rust inhibitive coatings. A feature of the catalog is a selector guide to aid in determining uses of protective coatings. Another feature is inclusion of two pages of paint chips to facilitate color matching.

For more details circle No. 420 on enclosed return postal card.

Resuscitators

A revised brochure (NM-105) describing and illustrating models of "Handy" resuscitators for rescue work and use in ambulances and hospitals is available from National Cylinder Gas Division of Chemetron Corp., 840 N. Michigan Ave., Chicago 11. The brochure discusses the First-In

model, the Back Pack model designed for strapping to the back, and standard and "Cadet" portable models. The brochure explains how the units can be used as resuscitators, inhalators, or aspirators, and lists accessories available for this line of equipment.

For more details circle No. 421 on enclosed return postal card.

Explosionproof Illuminators for Liquid Level Gages

Data Sheet No. 375 covers the features and sizes of Jerguson Explosionproof Illuminators, which give light over the length of the gauge glass, are UL and CSA approved, and reportedly simplify relamping. Jerguson Gage & Valve Co., 80 Adams St., Burlington, Mass.

For more details circle No. 422 on enclosed return postal card.

Stop Weeds Before They Start

A weed control brochure contains directions, diagrams, applications, and other data for Simazine (pre-emergence) and Atrazine (pre- or post-emergence) longresidue herbicides. Geigy Agricultural Chemicals, Div. of Geigy Chemical Corp., Saw Mill River Road, Ardsley, N. Y.

For more details circle No. 423 on enclosed return postal card.

Drop-Forged Fittings

Catalog No. 950-2 illustrates drop-forged fittings for wire rope and chain. Specifications cover each model in the firm's line. Load-rated fittings are emphasized. Crosby-Laughlin Div., American Hoist & Derrick Co., 63 So. Robert St., St. Paul I, Minn.

For more details circle No. 424 on enclosed return postal card.

Rolling Ladders

A line of welded steel safety ladders is reviewed in a catalog offered by I. D. Cotterman, 123 W. Spring Ave., Naperville, Ill. Construction features and dimensions are included for each model. Side ladders and work platforms are described.

For more details circle No. 425 on enclosed return postal card.

Germicidal Cleaner

Korex, germicidal cleaner, also disinfects and deodorizes everything from floors and walls to hospital instruments. Huntington Laboratories, Inc., Huntington, Ind.

For more details circle No. 426 on enclosed return postal card.

All-Steel Barricade

Literature from West Side Iron Works, Inc., 327 Front Ave., N. W., Grand Rapids 4, Mich., describes an all-steel, portable, collapsible barricade. It can hold two red warning flags and mounting brackets for flashers or flares and has glass-beaded reflectorization on traffic yellow cross bars for maximum nighttime visibility.

For more details circle No. 427 on enclosed return postal card.

Sweatbands

Rubber sweatbands, perforated for comfortable wear and adjustable to any size head, are described by literature of Pulmosan Safety Equipment Co., 644 Pacific St., Brooklyn 71, N. Y.

For more details circle No. 428 on enclosed return postal card.

Work Gloves

Job-fitted gloves are made by Edmont Mfg. Co. for specific tasks. Free samples can be supplied for comparison tests. Edmont Mfg. Co., 1205 Walnut St., Coshocton Ohio.

For more details circle No. 429 on enclosed return postal card.

Floor Dust Control

Floor dust control through application f "Westone" (which inhibits bacteria growth) is discussed in a leaflet available from West Chemical Products, Inc., 42-27 West St., Long Island City 1, N. Y.

For more details circle No. 430 on enclosed return postal card.

Industrial Uniforms

Illustrated catalog presents a line of lint-free acid-resistant industrial uniforms tailored of 100 per cent Du Pont Dacron. Shown are hoods for men, speed caps for women, women's coveralls, and conductive rubber-sealed boots. Fashion Seal Uni-forms, 175-5th Ave., New York.

For more details circle No. 431 on enclosed return postal card.

Safety Hats and Caps

Fiberglass safety hats and caps, offering protection and comfort, are covered in Bulletin No. 55. Included is information on the "Dual" suspension for safety with adjustable head band, plus data on the shell that has an added "veil" which provides a thin layer of resin and glass fibers close to the surface for weathering and abrasion. Fibre Metal Products Co., Chester, Pa.

For more details circle No. 432 on enclosed return postal card.

Cigarette Dunking Stations

Information on cigarette dunking sta-tions is available from Standard Industrial Products Co., 920 N. Garfield Ave., Peoria,

For more details circle No. 433 on enclosed return postal card.

Head and Eye Protective Equipment

Designed for the safety man's daily use, this illustrated catalog contains a listing of head and eye protection equipment. Descriptions and pictures are included on safety glasses, welders' goggles, helmets, face shields, respirators, and masks. Chi-cago Eye Shield Co., 2705 Roscoe St., Chicago 12.

For more details circle No. 434 on enclosed return postal card.

Flexible Ventilation Tubing

American Brattice Cloth Corp., Warsaw, Ind., has released a catalog describing their line of ABC Neolon flexible ventilation tubing for safe ventilation in mines, tunnels, bilges, and manholes. Specifications included.

For more details circle No. 435 on enclosed return postal card.

Skin Cleanser

Vi-Lan cleanser and dispensers for the product are described in a folder offered by Dameron Enterprises, Inc., 427 S. 20th St., Louisville 3, Ky. Vi-Lan is skin cleanser for use with or without water.

For more details circle No. 436 on enclosed return postal card.

Fume Collectors

Welding fumes and other irritating fumes can be reduced in your plant by using fume collectors. These are described in Bulletin No. 37-E. Ruemelin Mfg. Co., 3885 N. Palmer St., Milwaukee 12, Wis.

For more details circle No. 437 on enclosed return postal card.

Multi-Gas Detector

Literature tells how the Draeger Multi-Gas Detector provides a safety measure for many occupations-tracing and determining concentrations of more than 30 gases. Easy semi-quantitative gas eliminations can be read at the site of test, even by personnel not trained in analytical chemistry. Draeger Oxygen Apparatus Corp., 432 Park Ave., South, New York 16.

For more details circle No. 438 on enclosed return postal card.

Protection Against Skin Hazards

Applications of Kerodex 51 hand cream for dry work and Kerodex 71 for wet work are described in literature presented by Ayerst Laboratories, 22 E. 40th St., New York 16

For more details circle No. 439 on enclosed return postal card.

Vacuum Cleaning Laboratory

Don't take chances in cleaning radioac-Don't take chances in cleaning radioactive dust from contaminated surfaces. Literature on the Hild Floor Machine Company's UL-listed explosion proof vacuum cleaner and filter is available. Hild Floor Machine Co., 1217 W. Washington Blvd., Chicago 7.

For more details circle No. 440 on enclosed return postal card.

Rubber Floor Matting

Rubber floor matting is discussed in literature prepared by Wear Proof Mat Co., 2156 W. Fulton St., Chicago 12. Specifica-tions, pricing information, and photographs of the nonslip floor coverings are included.

For more details circle No. 441 on enclosed return postal card.

Lightweight Fire Hose

The eight pages of Catalog Section FH-The eight pages of Catalog Section Fris-59 illustrate six service types of "Fire Flex" fire hose. The last section discusses firemens' coats, boots, fiberglass hats, and "Rubberhide" safety innersoles. Goodall Rubber Co., Trenton, N. J.

For more details circle No. 442 on enclosed return postal card.

Protective Fencing

To protect industrial plants, parking lots, play areas, and other locations where safety and limited access are desirable, Realock Fence—weather- and corrosion-resistant is available in steel or aluminum. Colorado Fuel and Iron Corp., Continental Oil Bldg., Denver 2, Colo.

For more details circle No. 443 on enclosed return postal card.

For Safe, Nonslip Concrete Surfaces

A.I.A. File No. 3-D describes and recommends applications and specifications for silicon carbide and aluminum oxide abrasive grains for making concrete surfaces nonslippery and safe. Frank D. Davis Co., 3285 E. 26th St., Los Angeles 23, Calif.

For more details circle No. 444 on enclosed return postal card.

Anti-Slip Coating

Booklet I-F8-C describes Flintdek, an anti-slip coating, and its application in anti-slip coating, and its application in plants, buses, trucks, stadiums, and swimming pools. Flintdek is not affected by oil or ordinary chemicals, the 4-page publication states, and can be applied with trowel or spray. It is available in five colors. The treated area can be used for light traffic in 48 hours after application. Industrial Products Div. The Flintkote Industrial Products Div., The Flintkote Co., 30 Rockefeller Plaza, New York 20.

For more details circle No. 445 on enclosed return postal card.



- polyethylene "lock straps" assure minimum 1 1/4" crown clearance.
 numbered positions for easy snap-in size adjustment.
- suspension removed or replaced with snap-in "t-slots".
- 4. lace for comfortable crown adjustment.
- 5. plastic zippered sweatband removes swiftly with pullout motion, easily and rapidly replaced.

FIBRE-GLASS, ALUMINUM OR ELECTRICAL SHELL

Apex fibre-glass hats and caps are manufactured with a new resin-glass formula providing the greatest structural strength ever achieved in safety hats...
the Apex aluminum line is the
equal to fibre-glass in light
weight and comfort, and adds the advantage of heat reflection
... electrical line is molded of
highly resilient linear polyethy-

All three lines are free of maintenance and corrosion, and all three exceed standards for hard hat safety.



division of White Sewing Machine Corporation 6540 ST. ANTOINE STREET DETROIT 2, MICHIGAN

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National Safety News June, 1960

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• Until now, the answer has been emphatically <u>no!</u> But for the first time anywhere, a plastic plate is available that will filter the harmful ultra-violet and infrared rays of arc welding—and filter them to the same degree as the rigid standards set for glass in Federal specifications. Years of research have resulted in CESCO's new PLASTI-WELD* filters, which give arc welders these unusual advantages:

LARGE WINDOW AREA

In addition to the standard size 2" x 4%", PLASTI-WELD FILTERS may be used in CESCO 401-16 and 403-16 helmets. These give 77 square inches of viewing area, curved for panoramic vision.

LESS FREQUENT REPLACEMENT

The slightly higher price of PLASTI-WELD filters is greatly offset by their ability to outlast glass, as much as 6 to 1. Less breakage from dropping, impact or thermal shock.



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Comments from hundreds of welders who fieldtested PLASTI-WELD filters state that they give "unusual clarity—sharper definition of outline." Result: better output, higher quality work.

O LIGHT WEIGHT

The $2'' \times 4'''$ PLASTI-WELD filter, encased in its own rubber gasket, weighs less than one ounce, compared with two-and-a-half ounces for the average glass plate and cover glass. Regular lens gasket is not required. $7'' \times 11''$ PLASTI-WELD filter weighs only four-and-a-half ounces.



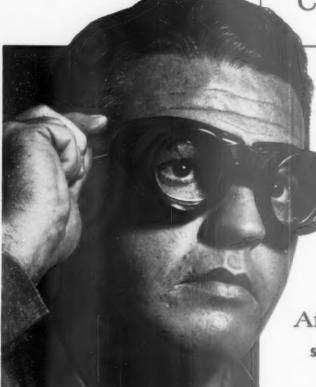
FOR MORE INFORMATION about CESCO PLASTI-WELD filters, contact your nearby CESCO distributor or write our Chicago office

*Pat, Pending

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on previous models. You'll find that the perforated aluminum side shields step up ventilation considerably and they will not corrode. Standard bridge is leather and adjustable. Also available with rigid bar bridge as 325B and with adjustable rigid bridge as 325R. For welders model of this goggle ask for No. 329.

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